

**The Annual Report
of the
Recycling Public Advisory Council**



**Presented to the
Honorable Jack Markell, Governor of Delaware
and the
147th Delaware General Assembly**

**November 2015
(Fourteenth Edition)**

The Annual Report of the Recycling Public Advisory Council

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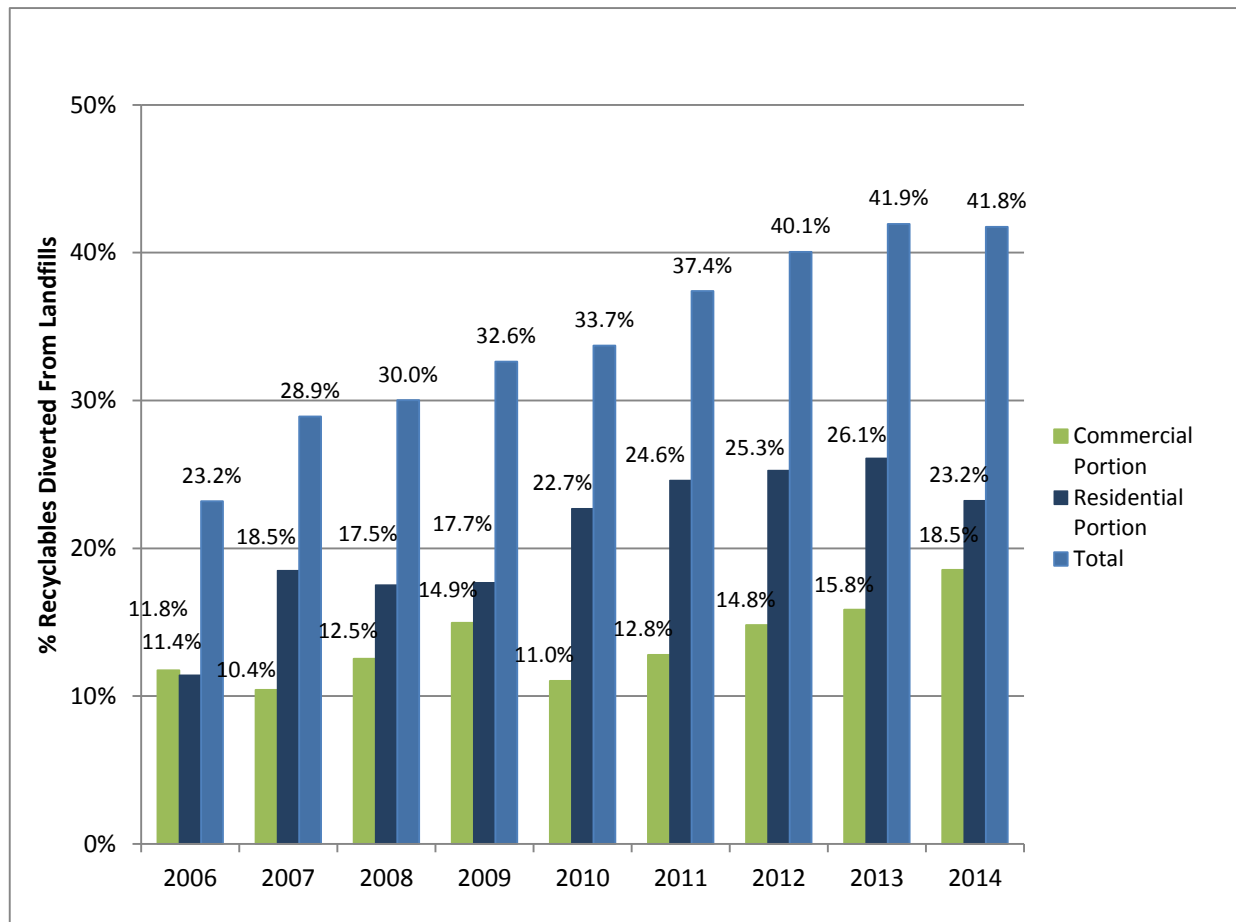
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Executive Summary

Universal Recycling has now been fully implemented in Delaware and we have succeeded in creating an environment that is increasingly supportive of recycling. Universal Recycling has underpinned the creation of two Material Recovery Facilities (MRFs) that began operations in 2013 and Delaware can now easily process our own source separated recyclables.

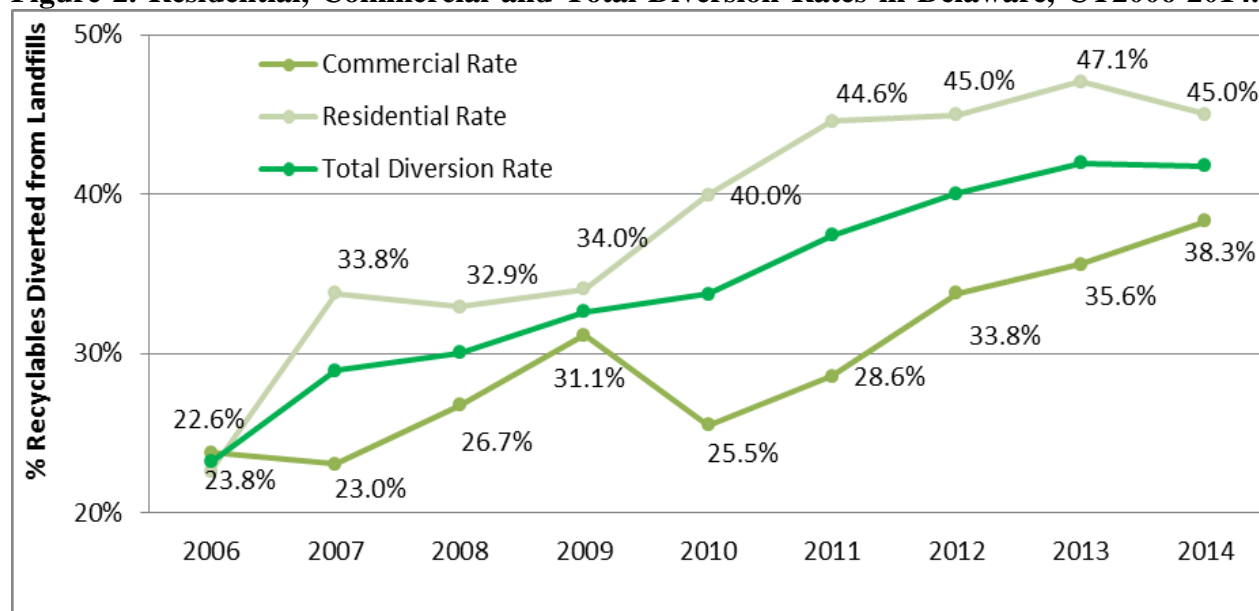
We are turning more of our waste into a resource while preserving our landfill space and simultaneously driving valuable, sustainable, Delaware industry as a result. Two clear examples of this are the ninety (90) jobs created at the Re-Community Materials Recovery Facility and the twenty five (25) direct jobs created at the Revolution Recovery construction and demolition waste recovery facility at the DSWA Delaware Recycling Center in New Castle, DE. Although the exact count has not been reported, there are clearly a number of additional direct and indirect jobs created as a result of Universal Recycling.

Figure 1. Percentage of recyclables diverted from landfills in Delaware, CY2006-2014.



Notes: 1. The green and dark blue columns represent the commercial and residential percentage of the recyclables diverted from disposal. For the individual commercial and residential diversion rates, 38.3% and 45.0% respectively, see Table 4. 2. The light blue column is the total diversion rate of all residential and commercial recyclables since 2006.

Figure 2. Residential, Commercial and Total Diversion Rates in Delaware, CY2006-2014.



Despite the substantial progress Delaware has made over the last decade, we have not yet reached our 2015 goal of a 50% MSW diversion rate. There have been setbacks and hurdles including the closing of the Wilmington Organics Recycling Facility and a languishing global economy that have impeded our progress and additional measures will be necessary to ensure that we reach this goal. Delaware just reached its 2015 goal of 72% for Total Solid Waste diversion, but there as well additional measures will likely be necessary to reach our 2020 goal. Some of the suggested measures follow in our Recommendations.

The Recycling Public Advisory Council (RPAC) has 16 Members representing diverse interests and has met regularly since the last report in November 2014. In addition to supporting and reporting on recycling activities, the RPAC has diligently worked with all stakeholders to help implement the requirements of the Universal Recycling Law in the timeframes required. A more detailed discussion of these efforts follows. This report covers recycling activities since November 2014 and recycling measurement for calendar year 2014.

Recycling Legislation

Since the signing of the Universal Recycling Law in June of 2010, the RPAC has focused upon the implementation of the many elements of this law. The first major milestone of this law was single-family residential recycling, which was fully implemented by September 15, 2011. The next milestone was multi-family residential recycling, which was implemented on January 1, 2013. The final component of this law is recycling in the commercial sector, which was implemented on January 1, 2014. A report describing the implementation plan for commercial recycling was issued by the RPAC in November 2012. RPAC continues to focus on the implementation of commercial and organics recycling as expanding those diversion rates will be necessary to meet the established diversion goals. With the Wilmington Organics Recycling Center closing in September of 2014 and Blue Hen Organics' Composting Facility closing in July of 2015, organics diversion is definitely on the decline and this will have a small negative

impact on our near term diversion rates. In response to the closure of both of Delaware's composting facilities Senate Concurrent Resolution 35 established the Organics Recycling Task Force to discuss and evaluate the most effective and efficient way to recycle organic waste within Delaware. While this task force is a separate entity from RPAC, five of the task force members are also RPAC members and RPAC is kept abreast of the task force's work. A separate report on the task force findings are due to the Delaware House and Senate Natural Resources Committees and the Governor by March 1, 2016. Ideally this activity will lead to the establishment of facilities capable of accepting much of Delaware's organic waste stream.

Recycling Grants and Loans Program

The RPAC has worked with the Department of Natural Resources and Environmental Control (DNREC) to develop grant and loan guidelines as required by the Universal Recycling Law. The following table summarizes the grant and loan activity to date:

Table 1: Recycling Grant and Loan Summary

| Grant & Loan Cycle | Area of Emphasis | Successful Applicants | Funding Expended |
|--------------------------|-----------------------------------|-----------------------|------------------|
| 1 | Single-Family Residential | 22 | \$4,688,262.96 |
| 2 | Multi-Family Residential | 8 | \$292,954.98 |
| 3 | Commercial | 15 | \$1,295,408.04 |
| 4 | Commercial, Non-profit, Education | 14 | \$190,851.33 |
| 5 | Education | 8 | \$56,868.67* |
| 6 | Education, Non-profit, Municipal | 11 | \$267,938.73* |
| Special Yard Waste Grant | Yard Waste Sites | 1 | \$482,000 |
| Grand Total | | 67 | \$7,274,284.71 |

*Denotes funds awarded/encumbered but actual expenditures cannot be determined until the end of the contract term.

Outreach and Education

The RPAC believes that efforts to increase the awareness and benefits of recycling are critical to improving how waste is managed in Delaware. Therefore, the RPAC has worked with the DNREC and the DSWA to develop and implement outreach efforts. This has included such items as radio ads encouraging recycling, public meetings, billboards, and a how-to guide to inform individuals on what and how to recycle. More information on DNREC and DSWA outreach and education activities can be found in sections 6.4 and 7.3 of this report.

Recycling Diversion

The RPAC has used the same methods to calculate recycling diversion rates in Delaware since 2006. The methodology is objective, scientific, auditable, and consistent with the U.S. Environmental Protection Agency’s (EPA) guidelines. A summary of the recycling rates produced using this methodology since 2006 is shown in Table 1 below:

Table 2. Recycling Rate Summary, CY 2006-2014.

| | Calendar Year | | | | | | | | |
|-------------------------------------|--|---|---|--|-------------------------------------|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
| Percent Diversion | 23.2% | 28.9% | 30.0% | 32.6% | 33.7% | 37.4% | 40.1% | 41.9% | 41.8% |
| Major Milestones¹ | Executive Order re-establishes RPAC. Two reports recommend recycling | Wilmington implements curbside recycling citywide | Cherry Island yard waste ban. DSWA offers Single Stream | Some private haulers begin offering curbside recycling | Universal Recycling signed into law | Central & Southern Yard Waste bans take effect. | First full year of single-family, single-stream | First full year of multi-family single-stream | First full year of commercial recycling |

¹For detailed explanations of Delaware’s major recycling milestones see “*Appendix E. Background of Recycling Efforts in Delaware*”

As demonstrated in Table 1, Delaware’s Municipal Solid Waste (MSW) diversion rate is beginning to stabilize at approximately 42 percent. While this is well above the EPA national average of 34.3 percent, it is well below the 2015 goal of 50 percent. If Delaware’s MSW diversion rate is going to meet the established goals it will be necessary to take additional action. Those actions include but are not limited to: performing additional recycling outreach and education in both the residential and commercial sectors, expanding organics recycling, implementing waste bans and/or establishing additional program requirements such as Pay As You Throw and Product Stewardship/Producer Responsibility initiatives.

DSWA also completed an estimate of [Total Solid Waste](#) (TSW) diversion for CY2014. It is important to understand that the TSW is significantly different than MSW. MSW is the waste we typically think of as household and commercial waste and is a subset of TSW. In CY2014 MSW weighed 1,131,132 tons whereas TSW in CY2014 weighed 3,470,832 tons. While TSW includes MSW, it also includes much larger sources of solid waste such as poultry waste, asphalt, concrete, biosolids and more. These wastes are largely recycled or put to beneficial use by the industries that create them because it makes economic sense to do so. Examples of such use are poultry litter and bio-solids as fertilizer and concrete and asphalt reused in roadway construction. Collectively the CY2014 TSW had a diversion weight of 2,503,685 tons which results in a diversion rate of seventy two (72) percent. Therefore Delaware achieved the interim TSW diversion goal of seventy two (72) percent by 2015.

Recommendations

The RPAC’s recommendations to Governor Markell and the General Assembly include steps they can take to increase the recyclables diversion rate:

1. Lead by example - require recycling in all state government facilities, including public schools and libraries, the courts system, and the legislature.

Many government facilities lack effective recycling programs. With the commercial recycling requirement in effect January 1, 2014 and with government offices falling under the jurisdiction of the commercial recycling requirement, appropriate measures should be taken to ensure recycling is provided at all government facilities.

Specifically, RPAC recommends that:

- the Governor ask all state agencies for the status of recycling collection availability at all of their offices their status with respect to compliance with the requirements of Executive Order 18.
- the General Assembly pass a resolution to require comprehensive recycling in Legislative Hall.
- the Judiciary, Department of Justice, Office of the Treasurer, Office of Insurance Commissioner and Office of Auditor of Accounts issue directives to its staff to require comprehensive recycling in all of their offices.
- DNREC-SHWMS be consulted to provide technical assistance with the implementation or expansion of recycling programs as needed.

2. Provide adequate funding to support the continuing implementation, expansion and evaluation of universal recycling. While the funds generated will support a grants program for several more years, the 10% allowed to cover administrative expenses will be depleted no later than the end of fiscal year 2018. Specifically:

- On December 1, 2014, the Recycling Fee of \$.04 per bottle sunset. With the end of this Fund, came the end of an on-going revenue source for DNREC's support of recycling programs and the overall implementation and evaluation of universal recycling. Therefore action is required by the General Assembly to ensure that future funding exists to fund DNREC's support, oversight and administration of the universal recycling law.
- Refrain from diverting further funds from the Delaware Recycling Fund without RPAC's recommendation. In order to meet the diversion goals established under the Universal Recycling Law, the RPAC estimates all of the collected funds from bottle fees will be required.

3. Legislators can support RPAC educational efforts by:

- Asking legislative aids to participate in DNREC and RPAC educational opportunities to give them an on recycling in Delaware so they can direct citizens to the right contacts regarding the proper methods of recycling in Delaware.
- Reminding constituents of upcoming recycling events by sending an occasional email blast, including in newsletters, and handing out flyers at Civic Association and other Community meetings.

4. Strengthen organics diversion by charging DNREC and DSWA to pursue the pending recommendations the Organics Recycling Task Force in order to implement solutions that will result in viable long term organics diversion alternatives for Delaware.

Organic waste, which includes food waste, is a significant and valuable part of the waste stream comprising approximately 18% of landfill waste. The closing of the both of the state's composting facilities, Wilmington Organic Recycling Center and Blue Hen Organics, will easily result in an approximately 10,000 ton reduction in the state's total diversion rate as well as eliminate the potential for any additional increase in organics diversion in the near term. This will have a direct impact on meeting the state's established diversion goals. RPAC awaits the results of the Organics Recycling Task Force and its recommendations on how best to re-establish and expand organics diversion in the state of Delaware.

1.0 Purpose

This is the Annual Report of the Recycling Public Advisory Council (RPAC). The purpose of the report is to fulfill requirements of 7 Del. C., §6058, which directs the RPAC to prepare an annual report addressing the following:

1. The status of attainment of the recycling goals specified in 7 Del. C., §6056;
2. An accounting of the recycling grants and loans programs and recommendations for future funding of the programs;
3. An assessment of the activities of both the DNREC and the Delaware Solid Waste Authority (DSWA) in achieving the goals specified in 7 Del. C., §6056;
4. An objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste; and
5. Such other recommendations as the RPAC shall deem appropriate.

The Solid Waste Recycling Law (the Universal Recycling Law) is attached to this report as Appendix A. A list of the current RPAC members can be found in Appendix B.

2.0 Background

2.1 Benefits of Recycling

There is more to recycling than feeling good about the environment. It also has tremendous economic value. Recycling:

- **Provides over 10 times more jobs than landfilling¹**
- **Creates local industry**
- **Extends the useful life of municipal landfills**
- **Reduces emissions of greenhouse gases**
- **Saves energy**
- **Conserves natural resources**
- **Reduces environmental damage from industrial, residential, and commercial waste**
- **Teaches environmental stewardship to individuals, business and government**

For further detail and supporting documentation please reference [*The Sixth Annual Report of the Recycling Public Advisory Council*](#), visit the RPAC website (<http://www.dnrec.delaware.gov/dwhs/Info/Pages/RPAC.aspx>), or contact the Division of Waste and Hazardous Substances, Solid & Hazardous Waste Management Section (see cover sheet).

The Northeast Recycling Council, Inc. (NERC) produced the [*Recycling Economic Information Study Update: Delaware, Maine, Massachusetts, New York, and Pennsylvania*](#) in February 2009. This report and its last two iterations are available on NERC's website, www.nerc.org. An important note is that the Delaware recycling, reuse, and remanufacturing industry has been estimated to have a \$346 million direct positive impact on our State's annual economy. Although recyclable values are currently lower than usual, it remains more cost effective to manage recyclables as a resource than to dispose of them.

2.2 Recent Recycling Efforts in Delaware

The State of Delaware has been promoting recycling since 1975, and a more extensive history of those efforts can be found in Appendix E. The following is a summary of recent recycling efforts.

Grants - The fifth and sixth cycle of the Universal Recycling Grant and Low Interest Loan Program were made available in August of 2014 and March of 2015 respectively. Between both

| |
|---|
| ¹ See <i>A Scenario for Resource Management in the State of Delaware</i> |
|---|

grant cycles a total of 20 applicants were selected for over \$324,000 in recycling grant funding. For more details see Tables 8 and 9 in Section 5.

Outreach – From November 1, 2014 to October 31, 2015 DNREC held twenty outreach and education training events throughout the state in reference to grant opportunities, the implementation of commercial recycling, and general recycling outreach and education. DNREC also held eight free waste assessments performed at individual businesses to assist these businesses with identifying the recyclable materials they generate and best way to manage them both in terms of diversion and cost. For a detailed list of these events see Table 11 in section 6 of this report.

3.0 RPAC Activities

RPAC continues to primarily focus its efforts on implementation of the Universal Recycling Law. This includes providing recycling grant and loan guidance, improving recycling guidance and toolkits for residents and businesses, and continuing with measurement and reporting of the amount and percent diversion of recyclables from Delaware landfills.

3.1 Measurement and Reporting

Prior to the reinstitution of the current RPAC, a Measurement and Methodology Subcommittee developed a methodology for measuring recycling diversion rates based upon EPA guidelines. This methodology provides an objective and auditable approach to recycling measurement which was relevant and repeatable. The Subcommittee's name was subsequently changed to "Measurement and Reporting" but their work continues in the current RPAC and has resulted in the ninth Recycling Measurement Report (included as section 4.0 of this report). Most importantly, these Recycling Measurement Reports establish a uniformly accepted approach that will make past, present, and future recycling measurements consistent and comparable.

The RPAC and DNREC have developed guidelines for the recycling industry to report information as directed by the Universal Recycling Law (7 Del. C., §6056). To help protect proprietary business information, the RPAC has been using a consultant to collect recycling data. Because reporting on commercial recycling activities was not previously obligatory, the Recycling Measurement Report was limited to voluntary surveys. The new, legally required reporting system will generate a fuller and more accurate spectrum of data, and will result in a better overall measurement of recycling in Delaware. The first reporting year with the new data collection requirement was 2011, which means this is only the third report with a full year's worth of data from the required industry reporting. This data does reflect the impact of implementation in all three phases of Universal Recycling – i.e. single-family, multi-family and commercial recycling.

3.2 Recycling Markets

Paul Bickhart (RPAC Member representing the recycling industry) and Michael Parkowski (RPAC Member representing DSWA) have key industry contacts providing information on the sale of collected recyclables. They have educated the RPAC on the status of recycling markets to better understand current industry circumstances. In late 2008, the markets for recycled commodities declined sharply in response to the national and global economies. Later in 2009 prices very slowly started to improve. The outlook continued to be positive into 2010, and was relatively strong and stable in 2011. Prices generally declined for some commodities and remained flat for others in 2012. In 2013 the overall recycling markets were relatively flat with little price movement up or down. In 2014 and 2015 prices declined further and remain on the low side of historical trends. This trend has historically followed the price of oil. This extended period of low pricing for recyclable materials is a global issue and is of concern to recycling managers everywhere. Consumers of recyclable materials continue to place strong emphasis on

material cleanliness and have a low tolerance for contamination. Delaware is well suited to meet these demands with the modern separation infrastructure that has recently been constructed and despite low recyclables pricing, recycling remains more cost effective than disposal.

3.3 Outreach

The RPAC, DNREC, and the DSWA continue to coordinate on the education of the public regarding the transition into universal curbside recycling, commercial sector recycling, improved yard waste diversion, the transition out of beverage container deposits, recycling industry reporting requirements, and the availability of the recycling grant and loan program. Educating the public is of very high importance to the RPAC and a necessary part of any successful program. Citizens might not know why they should recycle or how to participate. The RPAC provides advice and guidance to DNREC and the DSWA regarding their outreach and education efforts. While the RPAC does not provide recycling services, their input on this subject assists in the facilitation and encouragement of recycling amongst the state's citizenry. DNREC and DSWA specific outreach efforts are described in Section 6, Section 7, and Appendix D.

3.4 Other Activities

The RPAC is committed to helping Delawareans realize and implement better waste management practices. Regular RPAC meetings provide insight into a variety of topics. Most discussions and presentations over the past year have focused on the implementation of the Universal Recycling Law, the need for additional recycling outreach and education and what additional diversion efforts will be necessary in order to achieve the Universal Recycling diversion goals. Specific to these additional efforts, recycling stakeholders anticipate that the forthcoming updated waste characterization study will assist in targeting both recyclable materials (e.g. cardboard) and recycling sectors (residential vs. commercial) that require additional attention if excessive recyclables are found in the waste during evaluation of these respective waste streams.

RPAC continues to significantly contribute to the Universal Recycling Grant and Low-Interest Loan Program by reviewing and scoring grant applications. With DNREC's assistance the RPAC also tracked the recycling fee revenue. The total revenues raised by the recycling fee were just over \$14.4 million and therefore only sixty five percent of the \$22 million projected revenue was collected. To date almost \$7.3 million has been awarded in grants and loans and nearly \$1.4 million has been expended/encumbered in program support. The remaining balance of \$5.7 million is necessary to provide continued support for the recycling grant and loan program and to ensure fulfillment of the universal recycling program expectations.

The RPAC would also like to recognize and thank Brenna Goggin representing the Delaware Nature Society, Kelly Davis representing Delaware Technical Community College, and Michael Fusca representing the Alcohol Beverage Industry for their service to the Recycling Public Advisory Council. Their replacements are, and we welcome, Wendy Turner representing the Brandywine School District and Charles Campbell-King representing the Delaware Department of Technology and Information. An alcohol beverage industry representative awaits appointment.

4.0 Recycling Measurement Report

Originally under Executive Order 90, the RPAC had been directed to use the U.S. EPA's definitions of "recycling" and "municipal solid waste" and also to develop an "objective and auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste." In response to this directive, the RPAC created the Measurement and Reporting Subcommittee (M&R Subcommittee) comprising members of the RPAC, DSWA, DNREC, and the community. Pursuant to this directive, the M&R Subcommittee produced a methodology which was developed via an open and transparent process, recorded in such a way that it could be easily understood by members of the general public, and which was fully endorsed by each organization represented on the Council. This methodology has been consistently employed by the RPAC to analyze recycling data since CY2006 so that meaningful trends and comparisons could be established. The M&R Subcommittee has continued to employ this methodology under the new Universal Recycling Law.

4.1 Data Collection

The M&R Subcommittee obtained data from DSM Environmental Services, Inc. (DSM) for CY2014. Their report, *State of Delaware Assessment of Municipal Solid Waste Recycling for Calendar Year 2014*, is excerpted in Appendix C. In previous reports, DSM had collected data on recyclable materials collected by private industry in Delaware, while DSWA collected its own data and reported numbers directly to the RPAC. The RPAC then calculated commercial and residential waste disposal and recycling estimates using both data sets. Starting with calendar year 2011 data, DSM has collected data from both the DSWA and from private industry, and calculated recycling rates using methodology consistent with the M&R Subcommittee's previous efforts.

Calendar year 2014 represents the fourth year that private industry was required to report on recycling activity, per the Universal Recycling Law. While reporting has notably improved as a result of this requirement, DNREC and DSM continue to work with and pursue non-reporters who are believed to have valuable recyclables generation data which is critical to calculating the most accurate diversion rate possible.

The RPAC and DSM have worked to ensure that the methodology for data gathering is consistent with EPA guidelines and that there is no double counting of recycling activities. The survey work by DSM was funded by the DSWA for CY 2014, but program management has been the responsibility of the RPAC.

4.2 Diversion Rate Calculation

The waste stream can be broken down into two primary categories: Municipal Solid Waste (MSW) and non-MSW. Put simply, MSW is what most of us think of when we think of "trash" - even though it contains a high percentage of valuable resources. The EPA's guidance for calculating recycling rates limits "recycling" to the category of MSW. Additional detail

regarding definitions of recycling can be found in RPAC's 2006 Annual Report and in "Measuring Recycling: A Guide for State and Local Governments" (EPA-530-R-97-011).

Determining the percent diversion of recyclables from Delaware's solid waste stream involves the following calculation:

$$\text{Diversion rate of recyclables (\%)} = 100 \times \frac{\text{MSW recyclables, tons diverted}}{\text{MSW recyclables, tons diverted} + \text{MSW, tons disposed}}$$

The methodology developed by the RPAC calculates the percent of recyclables diverted from the MSW stream, as well as the total tonnage of MSW being landfilled. It also subdivides results into the residential and commercial sectors. These residential and commercial allocations were developed based upon comprehensive waste composition studies conducted in 2006 and 2007, the best judgment of DSM, and the best judgment of the members of the M&R Subcommittee.

Determining whether a material was generated by the commercial or residential sector can sometimes be difficult to resolve and is not always intuitive. Generally the EPA and the M&R Subcommittee allocate materials to the original 'generator' even though they may not be the one who actually performs the recycling. For example, lead acid battery recycling performed by a commercial battery retailer would be attributed 80% to the residential sector because approximately 80% of the batteries are generated from non-commercial vehicles. While this 'generator rule' can be debated, it is consistent with general EPA guidelines and has been applied consistently since 2006.

4.3 Recycling Rates

Since CY2006, the RPAC has employed an objective, scientific, and auditable methodology for calculating recycling rates in Delaware that is consistent with the U.S. EPA's guidelines. A summary of the recycling rates produced using the aforementioned methodology is shown in Table 2 below:

Table 3. Recycling Rates Summary, CY2006-2014.

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-----------|-----------|-----------|---------|-----------|-----------|-----------|-----------|-----------|
| Diverted Recyclables (tons) | 248,410 | 323,396 | 318,002 | 323,637 | 359,147 | 401,883 | 405,953 | 450,499 | 472,344 |
| MSW Disposed | 823,479 | 794,984 | 741,143 | 668,353 | 706,368 | 672,761 | 607,539 | 623,463 | 658,788 |
| Total Municipal Solid Waste = Diverted Recyclables + MSW Disposed | 1,071,889 | 1,118,380 | 1,059,145 | 991,990 | 1,065,515 | 1,074,644 | 1,013,492 | 1,073,962 | 1,131,132 |
| Percent Diverted Recyclables | 23.20% | 28.90% | 30.00% | 32.60% | 33.70% | 37.40% | 40.10% | 41.90% | 41.80% |

Results comparing the residential to commercial sector rates for CY2013 & CY2014 are shown in Table 3 below. The residential recycling rate continues to exceed the commercial recycling rate, but the gap is narrowing. This is likely due in large part to the fact that 2014 was the first year of the commercial requirement to recycle resulting in a nearly three percent increase in the commercial diversion rate. This attenuating gap is also due to the fact that the residential diversion rate is stabilizing and it is important to note that if additional residential diversion is going to be realized, additional efforts will be required. It is also important to understand that waste and recycling tonnages fluctuate on an annual basis for many reasons and due to a variety of influences such as the economy, weather's impact on yard waste generation, recyclables markets and minor errors and omissions that may be discovered in subsequent reporting years. For example, even with the overall tonnage of MSW disposed higher in CY2014 than in CY2013, the residential diversion rate declined approximately two percent due primarily to a decrease in the residential yard waste tonnage as compared with CY2013. While large drops in the diversion rate should be investigated and their cause determined and corrected, these small variations should not be considered alarming.

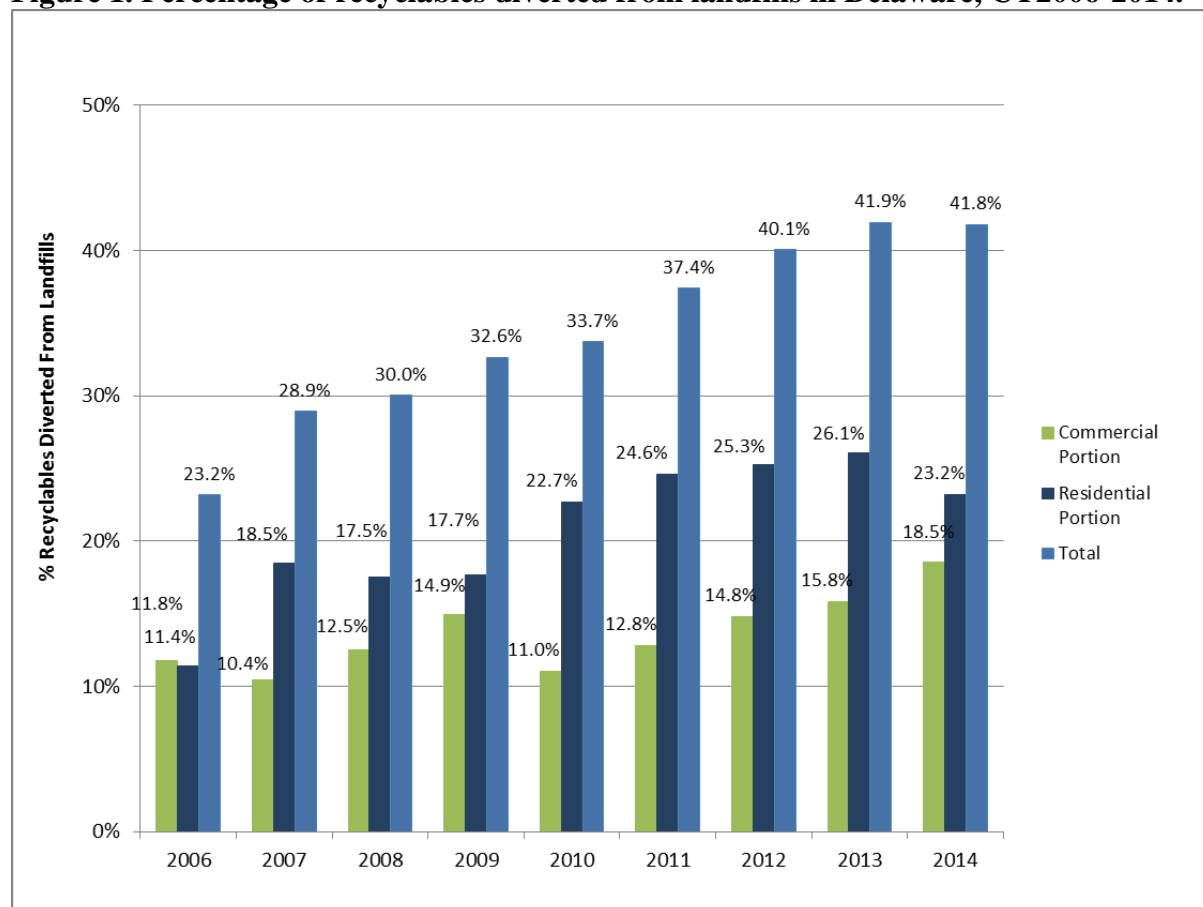
Table 4. Recycling Rates for Residential and Commercial Sectors, CY2013-2014.

| | 2013 | | 2014 | |
|--|-------------|------------|-------------|------------|
| | Residential | Commercial | Residential | Commercial |
| Diverted Recyclables (tons) | 280,328 | 170,171 | 262,653 | 209,691 |
| MSW Disposed | 315,281 | 308,182 | 320,651 | 338,137 |
| Total Municipal Solid Waste = Diverted Recyclables + MSW Disposed | 595,609 | 478,353 | 583,304 | 547,828 |
| Percent Diverted Recyclables | 47.1% | 35.6% | 45% | 38.3% |

4.4 Behind the Data – CY2014

CY2014 saw a very slight decrease in diverted recyclables versus CY2013. The CY2014 statewide average diversion rate was 41.8%: a net decrease of 0.1% since CY2013 (see Figure 1 below). This minor fluctuation in Delaware's diversion rate represents a leveling off of the diversion rate and a maturation of the existing Universal Recycling law as written.

Figure 1. Percentage of recyclables diverted from landfills in Delaware, CY2006-2014.



Notes: 1. The green and dark blue columns represent the commercial and residential percentage of the recyclables diverted from disposal. For the individual commercial and residential diversion rates, 35.6% and 47.1% respectively, see Table 3. 2. The light blue column is the total diversion rate of all residential and commercial recyclables since 2006.

Figure 2. Residential, Commercial and Total Diversion Rates in Delaware, CY2006-2014.

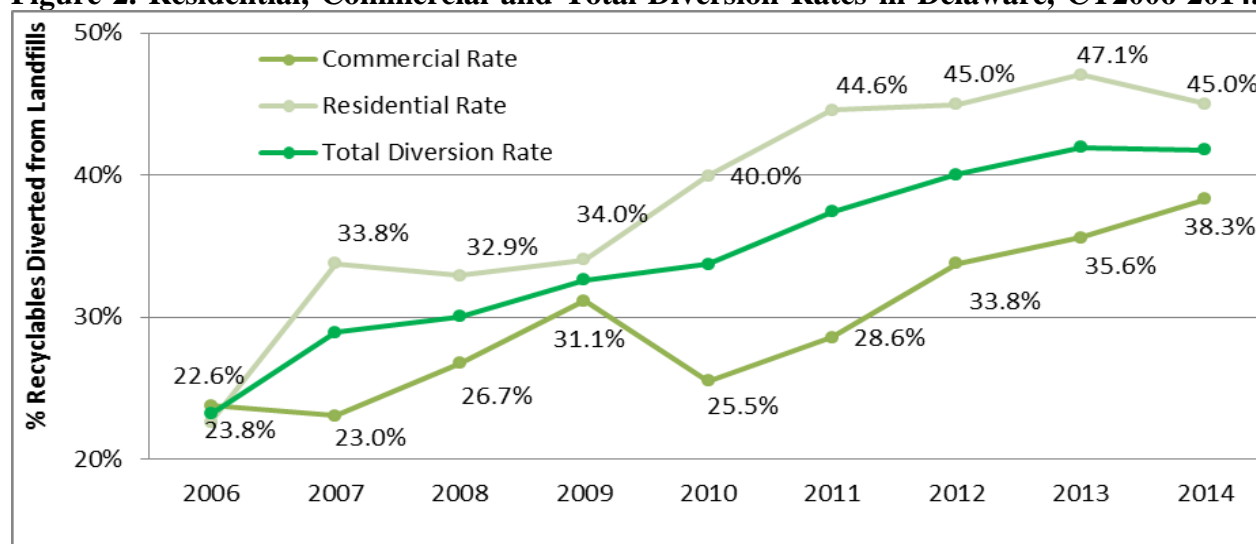
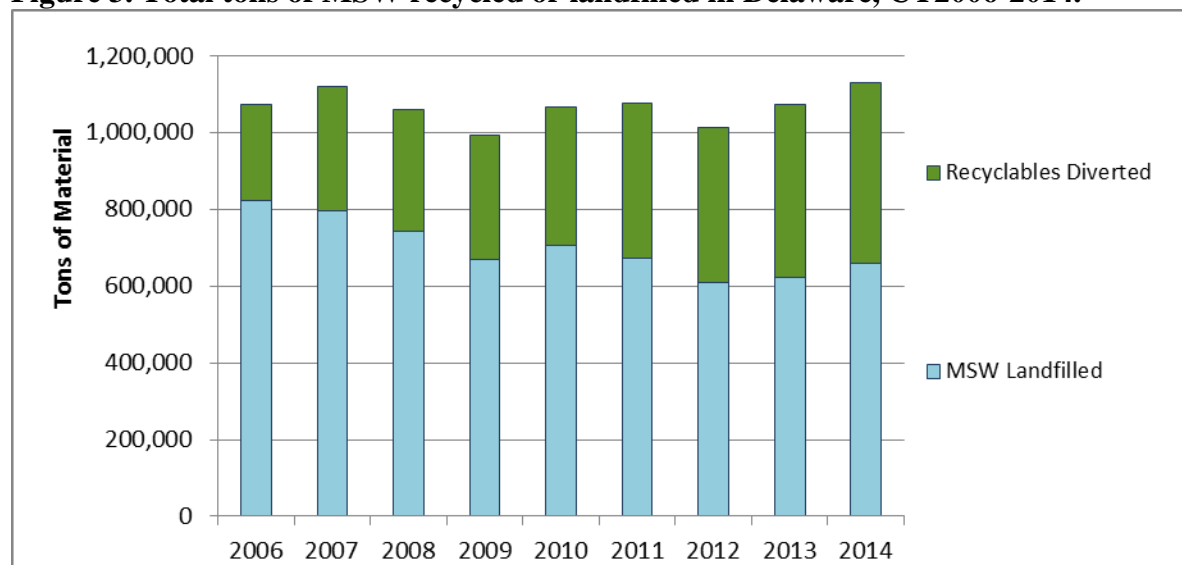
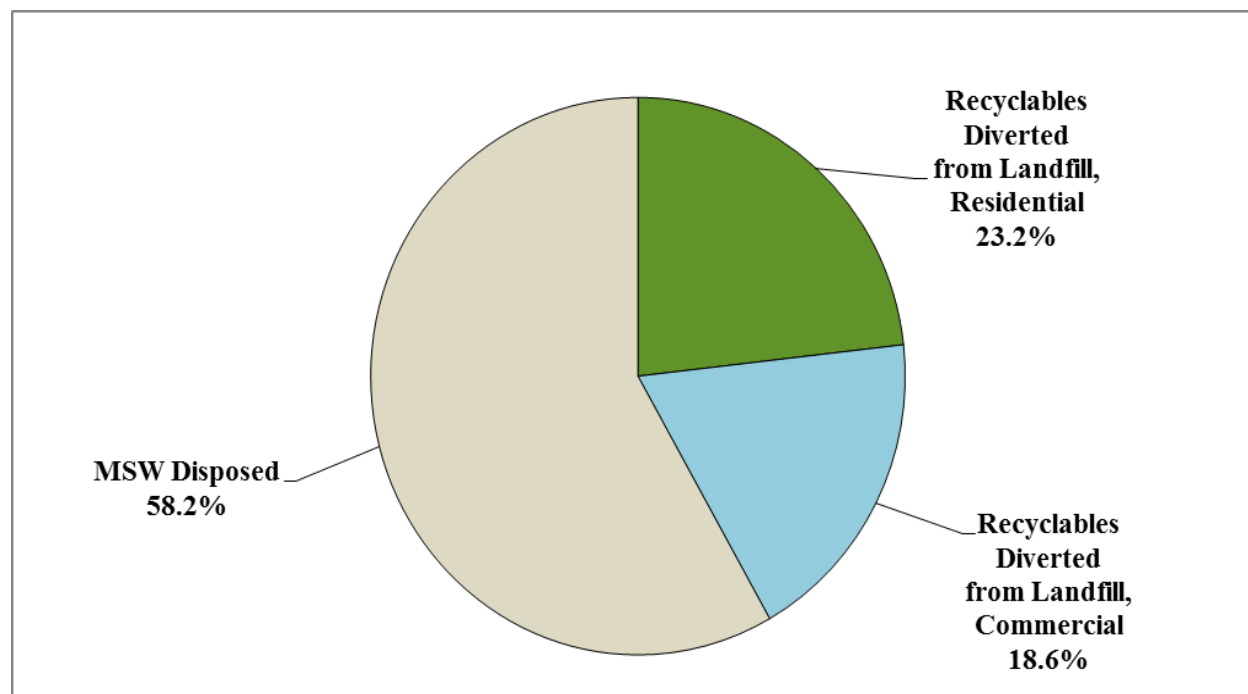


Figure 3. Total tons of MSW recycled or landfilled in Delaware, CY2006-2014.



Specifically results from CY2014 showed a small decrease in residential recycling – approximately two percent lower than CY2013 – and a nearly three percent increase in commercial recycling as compared with CY2013. A few points are worth noting here: 1. Since the implementation of Universal Recycling the single-stream diversion tonnage has nearly tripled from the 2010 rate. 2. Despite the small decrease in the overall diversion rate the diverted tonnage is actually up nearly five percent over last year (21,844 tons more) but due to an even larger increase in the disposal tonnage of nearly six percent (35,325 tons more) the net result is an overall higher denominator and therefore a slightly lower overall diversion rate. 3. The recyclable tonnage is actually decreasing in weight because of what is referred to as the “evolving ton.” Simply put the evolving ton is the how the makeup of our waste changes over time. Paper, glass and even steel usage have seen significant declines while plastic and corrugated containers have increased in usage. It is also important to recognize that plastic and aluminum containers are lighter than they used to be because they are made with less material than they used to be, i.e. today’s aluminum can or plastic bottle literally weighs less than its predecessor. With the heavier materials usage – paper, glass and steel - down and the remaining materials lighter, the overall weight of the recyclables stream is down which results in an overall lowering of the diversion rate even though the recycling activity has substantially improved.

Figure 4. MSW Disposed and % Residential and Commercial recyclables in CY2014.



4.5 Status of the Recycling Goals

The passage of the Universal Recycling Law established diversion goals of 50% for MSW and 72% for all solid waste by 2015. The diversion rate of recyclables for CY2014 was 41.8% for the total MSW stream. To reach the goal of 50%, let alone 60% in 2020, will require the diversion of substantially more residential and commercial waste. This will likely require additional measures which include, but are not limited to:

- Additional effort in the area of recycling outreach and education.
- Continued expansion of recycling in the commercial sector.
- Comprehensive recycling throughout all branches of government,
- Programs such as Product Stewardship, Pay As You Throw and/or disposal bans.
- The re-establishment of outlets for the organic fraction of the waste stream.

The RPAC may recommend additional mechanisms to improve solid waste diversion in Delaware after the DSWA Waste Characterization Study is complete in 2016.

DSWA has obtained the services of DSM Environmental, Inc. to estimate the CY2014 Total Solid Waste diversion rate. It is important to understand that the TSW is significantly different than MSW. MSW, which is the waste we typically think of like household and commercial waste and which had a CY2014 weight of 1,131,132 tons, is a subset of TSW which had a CY2014 weight of 3,470,832 tons. While TSW includes MSW, it also includes much larger sources of solid waste such as poultry waste, asphalt, concrete, coal ash and more. These wastes are largely recycled or put to beneficial use by the industries that create them because it makes sense to do so. Collectively the CY2014 TSW had a diversion weight of 2,503,685 tons with a

diversion rate of seventy-two (72) percent! This meets the 2015 Universal Recycling interim diversion goal for TSW.

By maintaining a consistent methodology for 8 years, the RPAC has been able to develop a reasonably accurate and meaningful trend line analysis for recycling progress in Delaware. Continuing with this consistent methodology will enable the accurate tracking of progress toward the state's goals and help to inform future policy decisions.

5.0 Recycling Grants and Loans Program

The Universal Recycling Law establishes the Recycling Grants and Low Interest Loan Program (7 Del. C., §6054 and 7 Del. C., §6055). This program is designed to help implement:

- (1) Recyclables collection programs, especially residential programs; and
- (2) Other recycling initiatives including recycling of commercial waste and recycling outreach and education.

DNREC began the Recycling Grants and Low Interest Loan Program (the Program) in calendar year 2011 and will offer it at least annually until these funds are depleted. The RPAC has assisted DNREC in developing the Guidelines for each cycle of the Program.

The application deadline for the first cycle of the Program was January 24, 2011. Funding criteria for this round prioritized startup costs for single-stream, curbside recycling programs. The first cycle primarily funded the purchase of recycling carts, collection trucks and related equipment, and outreach expenses. Most of the awardees were municipalities and waste haulers. Entities that applied, were awarded, and accepted funding during the first cycle are included in Table 4.

Table 5. Entities Funded During the First Grant Cycle.

| Applicant | Funding |
|----------------------------|------------------------|
| Bethany Beach | \$ 250,377.00 |
| City of Dover | \$ 101,151.00 |
| City of Lewes | \$ 118,830.00 |
| City of New Castle | \$ 24,220.00 |
| City of Newark | \$ 212,063.00 |
| City of Rehoboth | \$ 40,187.00 |
| City of Wilmington | \$ 657,320.00 |
| Delaware City | \$ 29,130.00 |
| DE Restaurant Association | \$ 12,470.00 |
| Delaware Sanitation | \$ 301,662.00 |
| Econo-Haul | \$ 983,075.00 |
| Fenwick Island | \$ 10,920.00 |
| First State Disposal | \$ 201,053.00 |
| Hockessin Sanitation | \$ 101,831.00 |
| Jay D C Enterprises | \$ 149,760.00 |
| KRC Waste Management, Inc. | \$ 104,160.00 |
| Moor Disposal Services | \$ 778,939.00 |
| O'Fig Sanitation | \$ 66,375.00 |
| Palmatary's Sanitation | \$ 114,447.00 |
| Town of Elsmere | \$ 94,622.00 |
| Town of Middletown | \$ 306,000.00 |
| Town of Smyrna | \$ 170,295.00 |
| Total Encumbered | \$ 4,828,887.00 |
| Total Expenditures | \$ 4,688,262.96 |

The application deadline for the second cycle of the Program was March 14, 2012. Funding criteria for this round prioritized compliance assistance with the multi-family residential component of the Universal Recycling legislation, although other projects were considered. This cycle primarily funded recycling dumpsters, collection trucks and related equipment, and outreach expenses. Entities that applied, were awarded, and accepted funding for the second cycle are listed in Table 5. Most of the awardees were municipalities and waste haulers.

Table 6. Entities Funded During the Second Grant Cycle.

| Applicant | Funding |
|------------------------------|----------------------|
| Wilmington Housing Authority | \$ 18,059.80 |
| HARJOCO | \$ 54,941.84 |
| DE Restaurant Association | \$ 3,000.00 |
| Econo-Haul | \$ 138,965.00 |
| City of Rehoboth Beach | \$ 18,300.00 |
| City of Newark | \$ 6,604.00 |
| Lutheran Senior Services | \$ 2655.48 |
| Burns and McBride | \$ 83,521.66 |
| Total Encumbered | \$ 326,047.78 |
| Total Expenditures | \$ 292,954.98 |

The application deadline for the third cycle of the Program was March 28, 2013. Funding criteria for this round prioritized compliance assistance with the commercial recycling component of the Universal Recycling legislation, although other projects were considered. This cycle primarily funded recycling dumpsters, collection trucks and related equipment, and outreach expenses. Entities that applied, were awarded, and accepted funding for the third cycle are listed in Table 6. Grant contracts for these awardees were signed in June of 2013. The awardees were a mix of municipalities, waste haulers, private businesses and not-for-profit entities.

The 146th General Assembly used Bond Bill (House Bill 410) language to direct DNREC to issue a recycling grant to fund the DNREC run yard waste sites. Holland Mulch was awarded a grant to establish a new yard waste drop-off site the details of which are discussed in greater detail in section 6.2 of this report.

Table 7. Entities Funded During the Third Grant Cycle.

| Applicant | Funding |
|---------------------------|------------------------|
| Waste Management Inc. | \$91,933.33 |
| Bethany Beach | \$17,325.00 |
| Del. Nature Society | \$3,425.00 |
| RevolutionRecovery | \$357,949.00 |
| RPJ Waste | \$280,152.82 |
| Recycling Express | \$58,291.63 |
| Lewes | \$34,800.00 |
| Delaware State Fair | \$22,480.00 |
| Dover Downs | \$28,532.50 |
| REPLENISH – North | \$76,608.00 |
| Del-Mar-Va Council | \$35,212.43 |
| K.S.I. | \$20,225.25 |
| EDEN Delmarva-TLG | \$58,400.00 |
| First State Disposal | \$172,227.00 |
| Peninsula Disposal | \$133,357.33 |
| Total Encumbered | \$1,390,919.29 |
| Total Expenditures | \$ 1,295,408.04 |

The application deadline for the fourth cycle of the Program was December 18, 2013. Funding criteria for this round prioritized compliance assistance with the commercial recycling component of the Universal Recycling legislation as well as non-profits and school recycling, although other projects were considered. This cycle primarily funded recycling dumpsters, school dishware conversion, balers and outreach and education expenses. Entities that applied, were awarded, and accepted funding for the fourth cycle are listed in Table 7. Grant contracts for these awardees were signed in the spring of 2014. The awardees were a mix of municipalities, waste haulers, private businesses, schools and not-for-profit entities.

Table 8. Entities Funded During the Fourth Grant Cycle.

| Applicant | Funding |
|------------------------------------|---------------------|
| City of Newark | \$52,075.00 |
| Waste Management Inc. | \$47,700.15 |
| Caesar Rodney | \$16,437.31 |
| Seaford Elementary | \$2,544.48 |
| BFI Truck Body | \$64,646.00 |
| Sanford School | \$25,306.90 |
| BFI Containers | \$48,440.00 |
| Bilcare | \$8,733.61 |
| DE School for Deaf | \$27,687.68 |
| Craig Technologies | \$8,625.00 |
| Goodwill | \$21,907.50 |
| Sussex County Habitat for Humanity | \$18,750.00 |
| Biggs Museum | \$3,999.92 |
| Del Ctr for Inland Bays | \$19,012.95 |
| Total Encumbered | \$365,866.50 |
| Total Expenditures | \$190,851.33 |

The application deadline for the fifth cycle, which prioritized implementation of school recycling programs, was August 14, 2014. Funding was primarily in the form of recycling containers and outreach and educational materials in the form of signage and posters. Entities that applied, were awarded, and accepted funding for the fifth cycle are listed in Table 8.

Table 9. Entities Funded During the Fifth Grant Cycle.

| Applicant | Funding |
|---------------------------|--------------------|
| Delmar School District | \$1,459.00 |
| Kirk Middle School | \$4,792.18 |
| Mt. Pleasant Elementary | \$2,881.45 |
| Wesley College | \$47,736.04 |
| Total Encumbered | \$56,868.67 |
| Total Expenditures | TBD |

The application deadline for the sixth cycle, which was a mix of school, municipal, non-profit, multi-family and office recycling programs was March 3, 2015. Entities that applied, were awarded, and accepted funding for the sixth cycle are listed in Table 9.

Table 10. Entities Funded During the Sixth Grant Cycle.

| Applicant | Funding |
|--|---------------------|
| Appoquinimink SD | \$6,993.59 |
| Cape Henlopen SD | \$7,630.25 |
| Capital SD | \$15,276.00 |
| BrightFields Inc. | \$1,119.66 |
| East Pointe Apartments | \$4,928.22 |
| Georgetown Manor Apartments | \$5,285.97 |
| Laurel School District | \$6,635.89 |
| Partnership for the DE Estuary | \$12,029.50 |
| Red Clay SD | \$56,215.65 |
| Fenwick Island | \$2,689.00 |
| University of Delaware | \$5,985.00 |
| City of Wilmington* | \$143,150.00 |
| Total Encumbered | \$267,938.73 |
| Total Expenditures | TBD |
| *Note that the Wilmington application was made in Cycle 4 but was not finalized until Cycle 6 while Wilmington finalized the details of its program. | |

The Recycling Grants and Low Interest Loan Program is funded by the recycling fees established in the Universal Recycling Law. These fees were automatically sunset on December 1, 2014. A total of \$7,274,284.71 has already been allocated on the above mentioned grants including \$482,000 of this fund allocated to DNREC yard waste site management at the direction of the legislature. About \$5.7 million remains for future grant cycles. DNREC and RPAC are certain that remaining funding will be critical to fund additional grant and loan opportunities in order to reach the legislated diversion goals established for 2020.

6.0 DNREC Activities

DNREC's activities conducted in support of waste minimization and attaining the waste diversion goals included providing support to the RPAC, encouraging the recycling of yard waste, implementing and ensuring compliance with the universal recycling legislation, and conducting outreach and education.

6.1 Supporting the RPAC

In fulfillment of its responsibilities under the Universal Recycling Law, and previously under Executive Order No. 90, DNREC continues to work diligently to provide support to the RPAC. The tasks that DNREC carried out in this area included, but were not limited to:

- Arranging all RPAC meetings;
- Preparing and distributing agendas and minutes for all RPAC meetings;
- Publicizing the RPAC meetings, reports, and efforts;
- Coordinating the Universal Recycling Grant and Low-Interest Loans Program;
- Participating in Subcommittees: Measurement and Reporting (M & R) Subcommittee (responsible for establishing and enforcing recycling reporting requirements and an agreeable recycling measurement methodology for Delaware); and Outreach Subcommittee; Commercial Industry Recycling Subcommittee;
- Drafting pertinent products or documents for RPAC meetings and Subcommittees; and
- Preparing the RPAC's Annual Report (including printing and distribution).

6.2 Supporting the Diversion of Yard Waste

The bulk of DNREC's yard waste diversion efforts have been the operation and maintenance of a temporary community yard waste demonstration site located in New Castle County on Polly Drummond Hill Road. This site was created for residents to bring yard waste from their own property for free. The materials collected at this site are periodically ground into mulch, which is removed by a contractor.

The 146th General Assembly used Bond Bill (House Bill 410) language to direct DNREC to issue a recycling grant to fund the DNREC run yard waste sites. Following DNREC's 2012 request for support, the RPAC recommended that DNREC use recycling grant money to issue either: a) A one-time grant for establishment of a private yard waste site that will serve as an alternative to both the DART and Polly Drummond Hill Road sites in between the two existing sites, OR b) A one-time grant for the establishment of a private alternative to the DART site and a one-time grant for the operation of the Polly Drummond Hill Road site or it's alternative. The intent was solely to transition state-operated yard waste drop-off sites into the private sector. The selected grantee, Holland Mulch, used the grant funds to establish a new yard waste drop-off site in between the two sites. Due to a long delay in Holland Mulch getting the necessary approvals from New Castle County and the Department of Transportation to open this new site located at 1034 South Chapel Street in Newark, a temporary site was opened on Brookhill Drive. The

South Chapel Street became fully operational in August of 2014 and will accept yard waste from Delaware residents at no cost until October 2017. To date DNREC has been unable to close the Polly Drummond Hill site.

The enforcement of the Cherry Island Landfill yard waste ban has been in place for approximately seven years. Yard waste bans were incorporated in permits for DSWA's Central and Southern landfills effective January 1, 2011. Individuals and businesses have adjusted well. It is estimated that as much as 103,356 tons of yard waste were diverted from Delaware's landfills in 2014. Banning yard waste has effectively diverted a useful material from entering the landfill while fostering local jobs and businesses.

DNREC readily presents yard waste management information and options to community and interest groups, maintains a yard waste management website (www.dnrec.delaware.gov/yardwaste), and produces a guide to backyard composting.

6.3 Implementing Recycling Legislation

Since the passage of the Universal Recycling Law, DNREC continues with implementation of the tasks required by the Universal Recycling law, including but not limited to:

- Outreach and educational efforts,
- Meeting with waste haulers, municipalities, and the DSWA to coordinate implementation of universal recycling,
- Continuation of the Universal Recycling Grant and Low-Interest Loan Program, and
- Recycling measurement and reporting.

DNREC continues to invest significant staff time and resources to support and carry out the Universal Recycling Law. Much work remains as staff works towards achieving the state's 2015 and 2020 diversion goals and every advance in recycling yields environmental and economic benefits.

6.4 Public Education and Outreach

With the implementation of universal recycling, DNREC worked with RPAC and the DSWA on ways to reach practically every Delawarean. DNREC accomplished the following multi-media efforts in 2015:

- Maintained & upgraded 'Delaware Recycles' website www.recycling.delaware.gov
- Maintained 'Delaware Recycles' Facebook page www.facebook.com/delawarerecycles
- Updated the print and digital versions of the 'How To Recycle' Guide (July 2015)
- Updated the print and digital versions of the 'Backyard Composting' brochure (July 2015)

DNREC continues to improve and augment the recycling information resources available on its website and in its handouts. All of RPAC's Annual Reports, recent meeting minutes and

agendas, several studies, information on the universal recycling legislation, and other information on recycling and composting can be found on the DNREC recycling website: www.dnrec.delaware.gov/dwhs/Recycling/Pages/Recycling.aspx and the DNREC-maintained RPAC website: www.dnrec.delaware.gov/dwhs/Info/Pages/RPAC.aspx. These websites include the commercial recycling FAQs, the commercial recycling toolkits, and the commercial recycling Governor's report. DNREC also has developed and updated websites dedicated to yard waste (www.dnrec.delaware.gov/yardwaste) and the Universal Recycling Law (www.recycling.delaware.gov).

DNREC conducted or participated in many activities to increase public awareness of recycling opportunities and benefits. DNREC distributed outreach materials and information at public events such as the Wilmington Earth Day, Delaware State Fair, and various farmers markets. Presentations were also provided to schools, community groups, and professional organizations upon request. Outreach activities focused on the opportunities and benefits of recycling and waste reduction. DNREC provided recycling assistance to the commercial sector and conducted waste assessments at many small businesses that included a non-regulatory, informal analysis of the waste stream and waste management practices with follow-up recommendations. As a result of these activities, tens of thousands of Delaware residents were educated on a variety of recycling issues. Table 11 lists public outreach events and meetings attended or hosted by DNREC.

Table 11: Recent DNREC Public Outreach Events and Meetings

| Date | Meeting/Event (Location) | Time | Hosted By |
|-------------------|--|-------------|-----------------------------------|
| December 5, 2014 | WXDE –FM 105.9 | 1:05p.m. | Radio Interview with Susan Monday |
| December 30, 2014 | WILM and WDOV, Wilmington | 8:30am | WILM Radio Interview |
| February 12, 2015 | Goodwill Recycling Center | 2:00-3:30pm | Goodwill of Delaware |
| February 26, 2015 | DRGSW Amendments Hearing | 6p.m. | DNREC |
| March 10, 2015 | Westin Wilmington | 12 – 1pm | DNREC Green Lodging Program |
| March 17, 2015 | DHSS / Anne Carr | 1 – 2pm | DNREC waste assessment |
| April 2, 2015 | Hampton Inn & Suites | 2 – 3pm | DNREC Green Lodging Program |
| April 9, 2015 | Delaware Center for Horticulture | 10 - 12pm | DNREC Composting in Delaware |
| April 14, 2015 | Moore's Garage, Felton | 12:30 – 2pm | DNREC waste assessment |
| April 20, 2015 | Blue Hen Organics Community Meeting | 6p.m. | Indian River Senior Center |
| April 21, 2015 | Seaford School District | 2 -3:30pm | DNREC waste assessment |
| April 22, 2015 | Wilmington Earth Day | 9 - 4 | City of Wilmington |
| April 24, 2015 | Eagle's Nest Christian Academy Community Day | 9 - 3pm | Eagle's Nest Christian Academy |
| April 7, 2015 | Milford School District | 10- 12pm | DNREC waste assessment |
| April 13, 2015 | University of Delaware for Coast Day | 1 – 2pm | DNREC waste assessment |
| May 26, 2015 | Rehoboth Beach Farmers Market (Rehoboth) | 11:30-5pm | Rehoboth Beach Farmers Market |
| June 25, 2015 | Millville Farmers Market (Millville) | 8-2 pm | Town of Millville |
| June 30, 2015 | Kent County Municipalities | 9 – 4pm | Distributed How to Recycle guides |
| July 1, 2015 | Lewes Harbour Condominiums | 9- 10am | DNREC waste assessment |
| July 1, 2015 | Sussex County Municipalities | 10 – 4pm | Distributed How to Recycle guides |

| Date | Meeting/Event (Location) | Time | Hosted By |
|--------------------------|--|----------------|---------------------------------------|
| July 16, 2015 | New Castle County Municipalities | 9- 4pm | Distributed How to Recycle guides |
| July 23, 2015 | Green Schools Roundtable | 2p.m. | DVGBC |
| July 23 – August 1, 2015 | Delaware State Fair (Harrington) | 10-8pm (daily) | Delaware State Fair DNREC Building |
| September 19, 2015 | International Coastal Clean-up | 9-12pm | DNREC |
| October 8, 2015 | Dover High School | 9 – 10am | DNREC waste assessment |
| October 8, 2015 | West Park Place Elementary | 11 – 12pm | DNREC waste assessment |
| October 23, 2015 | Green Schools Workshop | 1:00pm | DVGBC |
| March , 2015 | School Plant Information Exchange (SPIE) | 9 - 10am | Department of Education |

7.0 DSWA Activities

7.1 RECYCLE DELAWARE Drop Off Center Program

The DSWA continues to operate over 60 recycling drop off centers conveniently located throughout Delaware. Delaware residents can drop off single stream recycling as well as used motor oil, oil filters, household batteries, corrugated cardboard and textiles. In FY14, 10,330 tons of recyclables were received at the drop off centers.

Electronic Goods Recycling Program

In FY14, 2,083,040 pounds of electronic goods were recycled through DSWA's electronic goods collection program. DSWA collected 41,250 electronic devices for FY14.

Household Hazardous Waste (HHW) Program

In FY14, DSWA held fifteen (13) HHW events throughout the state. Approximately 7,000 vehicles dropped off household hazardous waste. The total amount of HHW collected at all events totaled 178,432 pounds. In addition to the thirteen events held throughout the state, DSWA holds weekly collection events at the DSWA Cheswold Collection Station, Delaware Recycling Center in New Castle and the Jones Crossroads Landfill in Sussex County. These weekly events collected an additional 238,226 pounds of material, making a grand total of 416,658 pounds collected for FY14.

Oil Filter and Waste Oil Recycling Programs

In FY14, DSWA collected 29 tons of oil filters and 636 tons of used motor oil from over 40 DSWA drop off centers located throughout Delaware.

Polystyrene Foam Recycling Program

In FY14, DSWA has a special program for polystyrene (#6 foam); Residents and commercial companies can drop off polystyrene at the Milford Transfer Station and the Delaware Recycling Center in New Castle. DSWA recycled 22,939 pounds of polystyrene.

Household Battery Recycling

In FY14, DSWA collected 118,000 pounds household batteries that were recycled.

Latex Paint Recycling

In FY14, DSWA started a new Latex Paint Recycling program. In the first year DSWA collected 59,200 pounds of latex paint from 651 participants.

Paper Shredding

In FY14, DSWA added paper shredding to the special collection events. This service allows Delaware residents to safely recycle their sensitive documents with no fear of identity theft. DSWA collected 240,340 pounds of paper for FY14.

7.2 Universal Recycling Activities

The Universal Recycling Law has significantly increased the amount of recycling participation in Delaware. In FY14 DSWA received 140,780 tons of single stream recyclables from trash haulers who collected it from residents living in single family and multi-family dwellings. The significant increase in single stream recycling that occurred because of the Universal Recycling Law has made it possible for the construction of a brand new, state of the art, Material Recovery Facility (MRF) which is located at the Delaware Recycling Center in New Castle. This new facility was built by Re-Community Recycling, a nationwide recycling company. The new MRF will be able to process single stream recycling at the rate of 35 tons per hour and has enough capacity to handle all of the single stream material for the State of Delaware for the next 20 years.

7.3 Public Education and Outreach

DSWA strongly believes in educating Delaware residents to increase awareness and to establish an interest in protecting the environment. DSWA educates residents about their programs through school and community presentations, attending special events, and developing educational curriculum which is taught at the Environmental Education Building. In 2014, DSWA attended over 90 school and community presentations reaching over 11,000 residents. DSWA distributed educational materials covering multiple topics for children of all ages with emphasis on recycling and composting.

In 2014, DSWA placed an important emphasis on its public outreach effort by attending over 22 different events throughout the state, which reached over 250,000 Delaware residents. DSWA attended events such as the Delaware State Fair in Harrington and the University of Delaware's Coast Day in Lewes. DSWA attends events like these to promote environmental awareness throughout the state as well as educate the public on programs and facilities that DSWA provides for residents.

The DSWA Environmental Education Building is located at the Delaware Recycling Center, next to the MRF. In the second school year of operation, over 2,000 children from Delaware schools visited the center and learned about recycling, composting and conservation.

DSWA encourages citizens of Delaware to contact them if they are in need of environmental information concerning any DSWA program or facility. DSWA provides a Citizens' Response Line, (800-404-7080) which answers approximately 50 calls a day from residents. In addition, DSWA's website (www.dswa.com) provides even more information for Delaware residents. These resources provide valuable information and keep the personal touch that has helped to establish DSWA as a leader in the environmental community.

8.0 Recommendations

8.1 Discussion of Goals

In addition to the RPAC's recommendations listed below, § 6056(b) requires *"In order to ensure that the waste diversion goals specified in Table 1 of this section above are achieved by the dates specified, the Department, in cooperation with the Recycling Public Advisory Council [RPAC], shall assess progress and recommend to the Governor and General Assembly any additional mechanisms necessary including but not limited to: which waste streams must be diverted from disposal; the parties responsible for ensuring the identified waste streams are diverted from disposal; the date by which the diverted waste streams must be diverted from disposal; implementation of Pay As You Throw; Extended Producer Responsibility; incentive based recycling; waste bans and related requirements. Such assessment shall be completed, inclusive of any draft legislation determined necessary, and submitted to the General Assembly no later than November 1, 2014, as part of the RPAC annual report."*

The intent of this requirement, as clearly stated, is to make sure the diversion goals are met. However, three key points are necessary to understand before such specific recommendations can be made. The first important point is that the "Municipal Solid Waste" (MSW) diversion rate calculation for 2014, which is the first year that all three phases of the universal recycling requirement will have been implemented, was not known until October 2015. As we now know the 2015 MSW diversion rate fell approximately eight percent short of the fifty percent diversion goal. The second point is that, as discussed in *Section 4. Recycling Measurement Report*, the 2015 TSW goal of seventy-two percent was achieved. The third important point is that it is also necessary to understand which recyclable material is or is not being recycled, and in which sector – commercial or residential – said recycling is or is not occurring, before specific recommendations can be made as to how to improve on the diversion of one or more recyclable materials in one or both sectors.

Two important activities remain that will provide needed data and from which recommendations can be confidently made to boost Delaware's diversion rate even further. Specifically those activities are:

- The Delaware Solid Waste Authority's updated Statewide Solid Waste Management Plan available in 2015 and,
- An updated Solid Waste Characterization Study, available in early 2016, that will provide valuable information on the amount and types of recyclables that remain in both the residential and commercial waste stream and therefore require additional effort regarding their diversion.

Armed with this information RPAC will work with DNREC and DSWA on making the recommendations, inclusive of draft legislation if appropriate, necessary to achieve the Interim Zero Waste Diversion Goals as specified in Table 1 of 7 Del. C. § 6056.

8.2 Current Recommendations

The RPAC's recommendations to Governor Markell and the General Assembly include the following steps that can be taken now to increase the recyclables diversion rate:

1. Lead by example - require recycling in all state government facilities, including public schools and libraries, the courts system, and the legislature.

Many government facilities lack effective recycling programs. With the commercial recycling requirement in effect January 1, 2014 and with government offices falling under the jurisdiction of the commercial recycling requirement, appropriate measures should be taken to ensure recycling is provided at all government facilities.

Specifically, RPAC recommends that:

- the Governor ask all state agencies for the status of recycling collection availability at all of their offices their status with respect to compliance with the requirements of Executive Order 18.
- the General Assembly pass a resolution to require comprehensive recycling in Legislative Hall.
- the Judiciary, Department of Justice, Office of the Treasurer, Office of Insurance Commissioner and Office of Auditor of Accounts issue directives to its staff to require comprehensive recycling in all of their offices.
- DNREC-SHWMS be consulted to provide technical assistance with the implementation or expansion of recycling programs as needed.

2. Provide adequate funding to support the continuing implementation, expansion and evaluation of universal recycling. While the funds generated will support a grants program for several more years, the 10% allowed to cover administrative expenses will be depleted no later than the end of fiscal year 2018. Specifically:

- On December 1, 2014, the Recycling Fee of \$.04 per bottle sunset. With the end of this Fund, came the end of an on-going revenue source for DNREC's support of recycling programs and the overall implementation and evaluation of universal recycling. Therefore action is required by the General Assembly to ensure that future funding exists to fund DNREC's support, oversight and administration of the universal recycling law.
- Refrain from diverting further funds from the Delaware Recycling Fund without RPAC's recommendation. In order to meet the diversion goals established under the Universal Recycling Law, the RPAC estimates all of the collected funds from bottle fees will be required.

3. Legislators can support RPAC educational efforts by:

- Asking legislative aids to participate in DNREC and RPAC educational opportunities to give them an on recycling in Delaware so they can direct citizens to the right contacts regarding the proper methods of recycling in Delaware.

- Reminding constituents of upcoming recycling events by sending an occasional email blast, including in newsletters, and handing out flyers at Civic Association and other Community meetings.

4. Strengthen organics diversion by charging DNREC and DSWA to pursue the pending recommendations the Organics Recycling Task Force in order to implement solutions that will result in viable long term organics diversion alternatives for Delaware.

Organic waste, which includes food waste, is a significant and valuable part of the waste stream comprising approximately 18% of landfill waste. The closing of the both of the state's composting facilities, Wilmington Organic Recycling Center and Blue Hen Organics, will easily result in an approximately 10,000 ton reduction in the state's total diversion rate as well as eliminate the potential for any additional increase in organics diversion in the near term. This will have a direct impact on meeting the state's established diversion goals. RPAC awaits the results of the Organics Recycling Task Force and its recommendations on how best to re-establish and expand organics diversion in the state of Delaware.

Appendix A. Universal Recycling Law

Delaware Code TITLE 7

Conservation

Natural Resources

CHAPTER 60. ENVIRONMENTAL CONTROL

Subchapter III. Solid Waste Recycling

§ 6051. Findings; intent.

In furtherance of the determination long established in § 6450 of this title that "the reduction of solid waste disposal and recovery of usable materials from solid waste are matters of extreme importance in minimizing the environmental impact of solid waste disposal through landfilling" and that it "is in the public interest to develop a comprehensive statewide system of recycling and resource recovery which maximizes the quantity of solid waste materials which can be recovered, reused or converted to beneficial use" the General Assembly hereby makes the following findings and declares the following intent with respect to the establishment of this subchapter. In order to establish a comprehensive statewide system of recycling, wherein recycling is maximized and the necessary economies of scale are realized, every residence and business must have access to recycling programs that are both convenient and cost effective. It is the intent of the General Assembly, in full recognition that the establishment of a comprehensive statewide recycling program has long been sought, that said program shall be accomplished by modification of the existing beverage container law and the establishment of universal recycling inclusive of the prescribed recycling programs, requirements and goals that follow. As such, liberal interpretation in favor of accomplishing the stated goals and objectives shall be exercised.

[77 Del. Laws, c. 275, § 1.](#);

§ 6052. Definitions.

Notwithstanding any definitions in Chapter 60 or 64 of this title to the contrary, the following words and phrases shall have the meaning ascribed to them in this subchapter unless the context clearly indicates otherwise.

(1) "Authority" means the Delaware Solid Waste Authority.

(2) "Beverage" means any mineral waters (but not including naturally sparkling mineral waters), soda waters or any other carbonated beverage not containing alcohol that is commonly known as a "soft drink" and any beer, ale or other malt beverage containing alcohol.

(3) "Beverage container" means any airtight non-aluminous container containing less than 2 quarts of a beverage under pressure of carbonation.

(4) "Dealer" means any person who engages in the sale of beverages in beverage containers to a consumer and shall include groups of retailers or retail chains.

(5) "Multi-family" means 3 or more attached structures, such as condominiums or apartments, generally intended for occupancy by individuals or families and where centralized community trash disposal and collection services are typically provided.

(6) "Municipal solid waste" means wastes such as durable goods, nondurable goods, containers and packaging, food scraps, organic yard waste and miscellaneous inorganic waste from residential (i.e. household), commercial, institutional and industrial sources such as appliances, automobile tires, old newspapers, clothing, disposal tableware, office and classroom paper, wood pallets, and cafeteria wastes. Municipal solid waste does not include solid wastes from other sources such as construction and demolition debris, auto bodies, municipal sludges, combustion ash and industrial process wastes.

(7) "On-premises sales" means sales transactions in which beverages are purchased by a consumer for immediate consumption within the area under the control of the dealer.

(8) "Organic yard waste" means plant material resulting from lawn maintenance and other horticultural gardening and landscaping activities and includes grass, leaves, prunings, brush, shrubs, garden material, Christmas trees and tree limbs up to 4 inches in diameter.

(9) "Recyclable material" or "recyclables" means any material or group of materials that can be collected and sold or used for recycling.

(10) "Recycling" means the process by which solid wastes are separated for use as raw materials, products or replacement of products, including the reuse of organic yard waste, but does not include the incineration of materials for energy.

(11) "Residential waste" means the solid waste generated in occupied single-family and multi-family structures. Also referred to as "household waste".

(12) "Single stream" means a system in which all fibers (including but not limited to paper, cardboard, etc.) and containers (including but not limited to plastic, glass and metal) are commingled for collection into 1 container instead of being sorted into separate commodities and multiple containers.

(13) "Single-family" means either a detached structure (i.e. a house) surrounded by open space or attached structures, such as town or row homes, generally intended for occupancy by a family and where individual trash collection services are typically provided for each structure.

(14) "Source-separated" means recyclable materials, including single stream recyclables, are segregated at the point of generation and kept apart from the waste stream by the generator thereof for the purpose of collection and recycling.

[61 Del. Laws, c. 503, § 1](#); [63 Del. Laws, c. 385, § 1](#); [67 Del. Laws, c. 341, § 1](#); [71 Del. Laws, c. 74, § 2](#); [77 Del. Laws, c. 275, § 1](#);

§ 6053. Universal recycling.

The goal of universal recycling is to create an economy of scale wherein a dramatic increase in Delaware's diversion of recyclables occurs in the most cost effective manner achievable while simultaneously creating job opportunities and significantly reducing Delaware's rate of waste disposal.

Universal recycling shall be implemented in accordance with the following provisions:

(1) Effective no later than September 15, 2011, the Authority shall cease providing curbside recycling services, including yard waste collection, and all persons providing solid waste collection services in the State shall also provide:

a. Single-stream curbside recycling collection services to all of their Delaware single-family residential customers, including delivery of a container for the purpose of storage and collection of recyclables that is adequately sized for the customers use such that recycling is encouraged and disposal of recyclables is discouraged; and the recyclables collection service shall be provided at a frequency of not less than once every other week.

b. Source-separated recycling collection services to dealers who provide on-premise sales, including delivery of a recyclables container that is adequately sized for the premise being served and a frequency of recyclables collection that shall preclude the recycling containers from overflowing and otherwise causing a nuisance.

c. All single-family residential and on-premise sales customers with a single charge for the collection of waste and recyclables on their "waste services" bill that is inclusive of the combined waste and recycling collection service costs. Local governments that do not presently bill separately for the costs of waste collection are exempt from this requirement.

d. Notification to all customers that the single-stream recycling service will be provided and instructions on participation prior to September 15, 2011.

(2) Effective no later than January 1, 2013, all persons providing solid waste collection services in the State shall provide:

a. Single-stream recycling collection services to all of their Delaware multi-family residential customers, including providing the multi-family complex with an appropriately sized and centrally located recyclables collection container or containers for the complex being served and ideally in the same proximity as the complex's waste disposal containers. Local governments may require multi-family complex owners to provide their own recyclable collection containers consistent with local requirements.

b. Notification to the multi-family complex management that the single-stream recycling service, including instructions on participation, will be provided.

c. A frequency of recyclables collection that shall preclude the recycling containers from overflowing and otherwise causing a nuisance.

d. Written justification to the Department for not providing multi-family recycling collection services where the physical constraints of the site prevent the placement of both trash and recycling containers. Exclusion from multi-family recycling is subject to Department review and approval.

(3) Owners of multi-family complexes must, at least once per calendar year, provide residents with instructions on participating in the complex's recycling program.

(4) The Recycling Public Advisory Council shall issue a report to the Governor and the General Assembly no later than November 1, 2012, with recommendations regarding the implementation of universal recycling in the commercial sector. It is the express requirement of this legislation that universal recycling be adopted by the commercial sector and that all commercial businesses actively participate in a comprehensive recycling program no later than January 1, 2014.

(5) Persons who choose to transport and deliver the solid waste and recyclables they generated on their own property for proper disposal or to a recycling facility of their choice respectively shall not be affected by this subchapter and may continue in this practice.

(6) Nothing shall impair the ownership of recyclable materials by the generator unless and until such materials are placed at curbside or similar location for collection and recycling, and nothing in this chapter shall be construed to prevent any person from collecting, transporting, processing, and marketing recyclable materials in competition with other persons in the same business, including the Authority, provided that the requirements of this subchapter are satisfied.

(7) Persons engaging in the collection, transportation, processing, or marketing of source separated recyclable materials shall conduct such activities in a manner that the source separated recyclable materials enter the marketplace and are otherwise not disposed via a landfill or by incineration.

[77 Del. Laws, c. 275, § 1.](#);

§ 6054. Delaware Recycling Fund.

(a) There shall be established in the State Treasury and in the accounting system of the State a special fund to be known as the Delaware Recycling Fund ("the Fund").

(b) The following revenue shall be deposited into the Fund:

(1) As specified in § 2912 of Title 30, the recycling fee on the sale of beverage containers;

(2) On the last day of each month, the State Treasurer shall credit the Fund with interest on the average balance in the Fund for the preceding month. The interest to be paid to the Fund

shall be that proportionate share, during such preceding month, of interest to the State as the Fund's and the State's average balance is to the total State's average balance;

(3) Any other revenue appropriated or transferred to the account by the General Assembly; and

(4) Repayment of low interest loans.

(c) The Fund shall be used by the Secretary for the exclusive purpose of funding specific activities designed to enhance the State's recycling rate and the diversion of recyclables that would otherwise be land disposed. The Fund may be expended only:

(1) To fund the Recycling Grants and Low Interest Loan Program referenced in § 6055 of this title. Annual funding for the Recycling Grants and Low Interest Loan Program shall be dependent on revenue generated by the Fund;

(2) To pay the limited and reasonable cost of the Department and the Recycling Public Advisory Council to study, evaluate and report on the status and potential for recycling various components of the solid waste stream, with emphasis on those aspects of municipal solid waste and commercial waste necessary to achieve the diversion goals established in § 6056 of this title;

(3) To pay the Department's limited and reasonable costs for administering this subchapter. No greater than 10% of the revenue deposited into the Fund shall be used by the Department for administering this subchapter without approval of the Joint Finance Committee and shall include but not be limited to: promoting the Recycling Grants and Low Interest Loan Program, universal recycling, zero waste principles, development of reporting requirements and related recycling initiatives; and

(4) To pay the Division of Revenue for the costs of administering § 2912 of Title 30.

(d) The Department shall commence the Recycling Grants and Low Interest Loan Program in calendar year 2011 and offer the Program at least annually thereafter until 2014.

(e) The revenue from the Fund and its disbursement via the Recycling Grants and Low Interest Loan Program shall be subject to audit and the recipient of any such funding shall agree to the audit and cooperate with the auditor as a condition of receiving funding.

(f) No expenditures shall be made from the Fund for any grants or loans pursuant to § 6055 of this title without the approval by the Controller General and Director of the Office of Management and Budget of a plan for revenues and expenditures for the period between December 1, 2010, and September 15, 2011.

[77 Del. Laws, c. 275, § 1.](#);

§ 6055. Recycling Grants and Low Interest Loan Program.

(a) There is hereby established a competitive Recycling Grants and Low Interest Loan Program (the "Program") to assist persons engaged in the business of collecting, transporting, processing, or marketing recyclable materials with the implementation of:

(1) Source-separated recyclables collection and processing programs with emphasis on start-up costs for residential single-stream recyclables collection; and

(2) Start-up costs for initiatives which result in the recycling of solid waste materials which would otherwise be land disposed, with emphasis on commercial waste.

The Program shall be administered by the Department, and monies from the Program shall be paid based on approved grant and loan requests. The Department shall be entitled to disburse grant and loan monies for the documented costs of implementing the collection or processing of recyclable materials. The Department shall be entitled to adopt guidelines and procedures for administering the Program and determining eligibility for receipt of funding pursuant to § 6054 of this title. Such procedures shall include provisions for repayment of loans to the Department and may include a rebate program for costs based on, including but not limited to, a prorated share of household customers in a recycling program that may have been in existence prior to creation of this law. The Department shall solicit the commentary of the grant eligible stakeholders during development of the grant guidelines and procedures. The Program shall be funded by monies made available under the provisions of § 6054 of this title.

(b) The Recycling Public Advisory Council, after the receipt of comments by grant and loan eligible stakeholders, shall make recommendations annually to the Department regarding the programmatic priorities for awarding Program funds under this subchapter. The Recycling Public Advisory Council shall provide recommendations regarding the categories and priorities for grants and loans that reflect an informed and representative view of the most urgent and important areas where grant funding will provide the most benefit to the State balancing current needs with those of future generations.

(c) The Department shall review all grant and loan applications and award grants and loans taking into consideration the Recycling Public Advisory Council recommendations. In those cases where the Department's funding decisions differ significantly from the Recycling Public Advisory Council recommendations, the Department shall report to the Recycling Public Advisory Council the justification for such differences.

(d) Any person providing solid waste collection services that is a recipient of a grant or low interest loan from the Delaware Recycling Fund shall not, as a result of implementation of universal recycling, increase rates charged for solid waste collection between such time as they make application for the grant until March 15, 2013.

[77 Del. Laws, c. 275, § 1.](#);

§ 6056. Adopting diversion goals and reporting requirements [Effective Dec. 1, 2010]

It is the intent of the General Assembly that implementation of the requirements of this subchapter reduce the amount of nonhazardous solid waste currently deposited in landfills in this

State by maximizing the recovery of recyclable materials. In order to do so, it will be necessary for the State to embrace the Zero Waste Principles of designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not incinerate or bury them. In that spirit, the following Interim Waste Diversion Goals are established with the understanding that as more data and information regarding the implementation of universal recycling become available, the goals leading up to January 1, 2020 may be modified by the Department as circumstances dictate; however, the January 1, 2020, goals may not be modified without the approval of the General Assembly:

| Table 1. Interim Zero Waste Diversion Goals (1) | | |
|---|------------------------------------|--|
| Date by which goal is to be achieved | Solid Waste Diverted from disposal | Municipal Solid Waste Diverted from disposal |
| January 1, 2015 | 72% | 50% |
| January 1, 2020 | 85% | 60% |
| (1) By weight | | |

(1) In order to effectively measure the diversion rates being achieved, all persons, including persons who collect, process or market recyclables, with the exception of those specified in § 6053(5) of this title, must report to the Department on a calendar year basis, no later than February 15 of the following year, the type and quantity of recyclables managed, the method of recycling collection used (single or multiple streams), and the location of the recycling facilities used pursuant to reporting guidance developed by the Department and the Recycling Public Advisory Council. Said reporting guidance shall be developed pursuant to the solicitation of stakeholders responsible for reporting, shall take into account the need for confidentiality of the information reported and shall be finalized no later than December 1, 2010. The first recycling report shall cover calendar year 2011 and shall be due no later than February 15, 2012.

(2) In order to ensure that the waste diversion goals specified in Table 1 of this section above are achieved by the dates specified, the Department, in cooperation with the Recycling Public Advisory Council [RPAC], shall assess progress and recommend to the Governor and General Assembly any additional mechanisms necessary including but not limited to: which waste streams must be diverted from disposal; the parties responsible for ensuring the identified waste streams are diverted from disposal; the date by which the diverted waste streams must be diverted from disposal; implementation of Pay As You Throw; Extended Producer Responsibility; incentive based recycling; waste bans and related requirements. Such assessment shall be completed, inclusive of any draft legislation determined necessary, and submitted to the General Assembly no later than November 1, 2014, as part of the RPAC annual report.

[77 Del. Laws, c. 275, § 1.](#);

§ 6057. Beverage containers -- Findings, intent, prohibitions.

(a) The General Assembly hereby finds that beverage containers are a valuable recyclable material and a major source of nondegradable litter in this State and that the collection and

disposal of this litter and solid waste constitutes a great financial burden for the citizens of this State; and that, in addition to this unnecessary expenditure of tax moneys, such litter unreasonably interferes with the enjoyment of life and property by our citizens; and that the practice of littering and disposal of a recyclable material is not compatible with previously adopted policies of the State in regard to proper use and protection of our natural resources.

(b) It is the intent of the General Assembly to increase recycling significantly, inclusive of beverage containers, thereby conserving valuable natural resources, removing the blight of litter on the landscape of the State caused by the disposal of beverage containers and other packaging, and reduce the increasing costs of litter collection and disposal.

(c) Prohibitions. -- No beverage shall be sold or offered for sale in this State:

(1) In containers connected to each other with plastic rings or similar devices which are not classified by the Department as biodegradable, photodegradable or recyclable.

(2) In a beverage container which is not recyclable or refillable.

[61 Del. Laws, c. 503, § 1](#); [64 Del. Laws, c. 57, § 1](#); [67 Del. Laws, c. 341, § 2](#); [77 Del. Laws, c. 275, § 1](#);

§ 6058. Establishment, composition and responsibility of the Recycling Public Advisory Council.

(a) There is hereby established a Recycling Public Advisory Council (the "Council"). The Council shall be composed of 16 members who shall be appointed by the Governor as follows:

(1) One member from the Department;

(2) One member from the Authority;

(3) One member representing county governments, with such member being recommended by the Delaware Association of Counties;

(4) One member representing municipal governments, with such member being recommended by the Delaware League of Local Governments;

(5) One member representing the recycling industry;

(6) One member representing the waste hauling industry;

(7) Two members, 1 representing the soft drink industry and 1 representing the alcohol beverage industry, representing the beverage industry;

(8) One member representing the Delaware State Chamber of Commerce;

(9) One member representing the Delaware restaurant industry; and

(10) Five members representing community-based or public-interest groups.

(11) One member representing the Delaware Food Industry Council.

(b) Members of the Council, except for those appointed pursuant to paragraphs (a)(1) and (2) of this section above, shall serve for terms up to 3 years and may not serve more than 2 consecutive terms but may again serve after 1 year off of the Council. Members shall be appointed for staggered terms so that no more than 5 appointments shall expire in any 1 calendar year. Members may be reimbursed for travel to and from meetings. The Governor shall appoint a Chairman from among the 16 members. Actions of the Council shall be approved by a majority vote of the Council. At least 9 members of the Council shall constitute a quorum. The Council may adopt bylaws as it deems appropriate to serve the purposes of this subchapter.

(c) The Recycling Public Advisory Council shall:

(1) Advise the Department and the Authority on all aspects of recycling;

(2) Advise the Department in developing criteria for the Recycling Grants and Low Interest Loan Program and selection of applications as well as provide an annual assessment of the revenue needed to satisfy the grant requirements;

(3) Maintain, in conjunction with the Department and the Authority, a methodology for measuring recycling rates;

(4) Provide advice and recommendations regarding the recycling outreach and education programs conducted by the Authority and/or the Department;

(5) Report to the Governor and the General Assembly annually by November 1 of each year on the status of recycling activities in Delaware. Said report shall include, but not be limited to the following:

a. Status of attainment of the recycling goals specified in § 6056 of this title;

b. An accounting of the recycling grants and loan program and any recommendations for future funding of the grants and loan program;

c. An assessment of the activities of both the Department and the Authority in achieving the recycling goals specified in § 6056 of this title;

d. An objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste;

e. Such other recommendations as the Council shall deem appropriate; and

f. Use the definitions of "recycling" and "municipal solid waste" as stated by the United States Environmental Protection Agency in its document EPA530-R-97-011 dated September 1997. The Council shall be able to adopt changes to these definitions.

(d) The Department, in concert with the Authority and the Council, shall:

(1) Monitor the State's recycling initiatives and measure Delaware's achievements toward attainment of the recycling goals specified in § 6056 of this title;

(2) Design and implement public educational efforts aimed at increasing public awareness of recycling opportunities;

(3) Provide technical assistance to local entities to assist them in increasing their recycling rates; and

(4) Provide administrative support to the Council.

[77 Del. Laws, c. 275, § 1.](#);

§ 6059. Enforcement, civil and administrative penalties.

(a) Whoever violates this subchapter, or any rule or regulation promulgated there under, or any order of the Secretary, shall:

(1) For the first conviction, be fined not less than \$100 nor more than \$500 for each day of violation;

(2) For each subsequent conviction for the same offense within a 10-year period, be fined not less than \$500 nor more than \$1,500 for each day of violation;

(3) In the Secretary's discretion, the Secretary may endeavor by conciliation to obtain compliance with all requirements of this subchapter. Conciliation shall be giving written notice to the responsible party:

a. Specifying the complaint;

b. Proposing a reasonable time for its correction;

c. Advising that a hearing on the complaint may be had if requested by a date stated in the notice; and

d. Notifying that a proposed correction date will be ordered unless a hearing is requested.

If no hearing is requested on or before the date stated in the notice, the Secretary may order that the correction be fully implemented by the proposed date or may, on the Secretary's own initiative, convene a hearing, in which the Secretary shall publicly hear and consider any relevant submission from the responsible party as provided in § 6006 of this title.

(b) Any person whose interest is substantially affected by any action of the Secretary may appeal to the Environmental Appeals Board, in accordance with § 6008 of this title.

Appendix B.

Recycling Public Advisory Council Members

Brock J. Vinton II, RPAC Chairman – Representing community-based or public-interest group
Citizens Solid Waste Solutions Commission

Paul R. Bickhart – Representing the recycling industry
Recycling Express of Delaware, Inc.

Michael D. Parkowski – Representing the Delaware Solid Waste Authority
Chief of Business and Governmental Services, Delaware Solid Waste Authority

Richard C. Cecil – Representing the Delaware Association of Counties
Executive Director, Delaware Association of Counties

Marianne Cinaglia – Representing community-based or public-interest group
Delaware Environmental Alliance for Senior Involvement

Marjorie A. Crofts – Representing the Dept. of Natural Resources and Environmental Control
Director, Division of Waste and Hazardous Substances

George Danneman – Representing the soft-drink industry
Delaware Beverage Association

Wendy Turner – Representing community-based or public-interest group
Educator, Brandywine School District

Vacant - Representing the alcohol beverage industry
Standard Distributing Company

Charles Campbell-King– Representing community-based or public-interest group
Delaware Department of Technology and Information

Robert A. Ziegler – Representing the Waste hauling industry
Republic Services

Brian Nixon – Representing the Delaware Chamber of Commerce
Invista

Adam Webster – Representing the restaurant industry
Grotto Pizza

Coralie Pryde – Representing community-based or public-interest group
League of Women Voters

Julie Miro Wenger – Representing the Delaware Food Industry Council

Stan Mills – Representing the Delaware League of Local Governments
Commissioner, City of Rehoboth Beach

The RPAC would like to recognize and thank Brenna Goggin representing the Delaware Nature Society, Kelly Davis representing Delaware Technical Community College, and Michael Fusca representing the Alcohol Beverage Industry for their service to the Recycling Public Advisory Council.

Appendix C.

DSM Measurement Report

Final Report
October 2015

Prepared for:
Recycling Public Advisory Council
c/o DNREC
89 Kings Highway
Dover, DE 19901

State of Delaware Assessment of Municipal Solid Waste Recycling For Calendar Year 2014



Prepared by:
DSM Environmental Services, Inc.
PO Box 2
Windsor, VT 05089-0002
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State of Delaware
Assessment of MSW Recycling for CY 2014



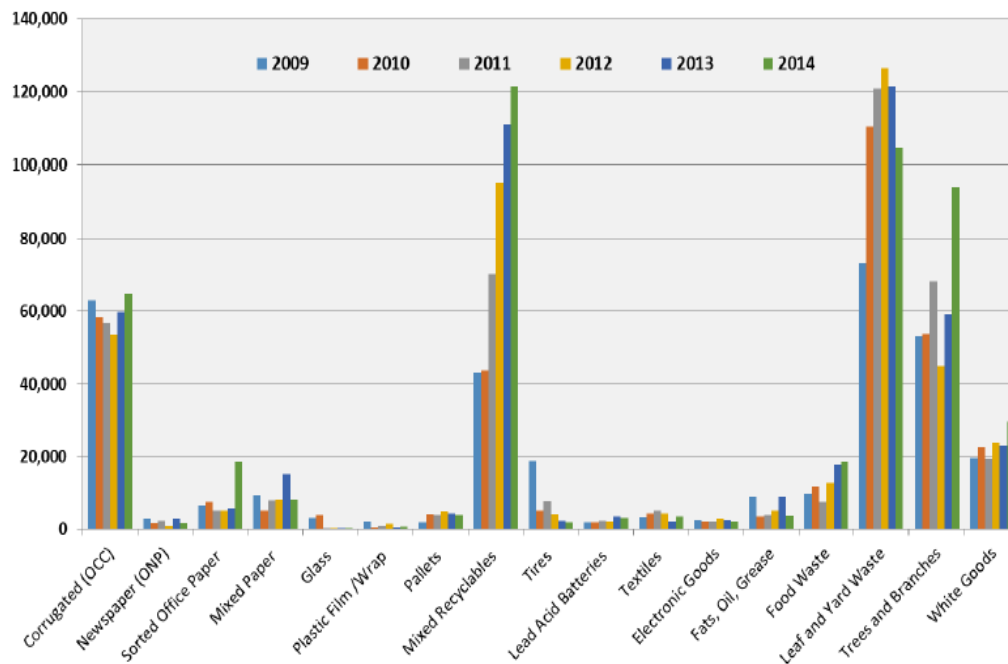
Results

Table 2 (on the next page) presents the 2014 results together with the 2011 through 2013 results to enable comparison. Separate numbers are reported for many materials collected by DSWA. However in 2013, DSWA contracted recyclables processing out to a private vendor and therefore mixed recyclables collected by DSWA are no longer reported by DSWA separately, as they are reported by the private processor and aggregated with all other mixed recyclables (mainly single stream materials) reported by other handlers/processors. Because of the large number of materials categories, and changes in recycling activity and material flow between years, Table 2 is heavily footnoted, and followed by a detailed discussion of the 2014 Results by material type.

The 2014 survey results indicate that material diverted for recycling increased by 5 percent (or 21,613 tons) between 2013 and 2014. Although prior year tonnages are shown, they are *not included* in the calculation of the difference but show that recycling increased by roughly 31 percent between 2011 and 2014.

Figure 1 compares the major material category totals for CY 2009 through CY 2014. As illustrated by Table 2, most of the increase is seen in single stream recycling (Mixed Recyclables), trees and branches, sorted office paper and appliances and is likely due to changes in activity as a result of the Universal Recycling Law as well as better reporting.

FIGURE 1: COMPARISON OF MATERIAL RECYCLED, CY 2009 – 2014 (TONS BY MATERIAL TYPE)



State of Delaware
Assessment of MSW Recycling for CY 2014



TABLE 2: COMPARISON OF DELAWARE MSW MATERIALS RECYCLING (CY 2014, 2013, 2012 AND 2011)

| Material Category | CY 2014 | | | CY 2013 | | | CY 2012 | | | CY 2011 | | | Difference, 2014 - 2011 | | | |
|-------------------------------|------------------|--------------|----------------|------------------|--------------|----------------|------------------|---------------|----------------|------------------|---------------|----------------|-------------------------|-------------|----------------|---------------|
| | All Other (Tons) | DSWA (Tons) | Total (Tons) | All Other (tons) | DSWA (tons) | Total (tons) | All Other (tons) | DSWA (tons) | Total (tons) | All Other (tons) | DSWA (tons) | Total (tons) | All Other (tons) | DSWA (tons) | Difference (%) | Total (tons) |
| Paper, Paper Packaging | | | | | | | | | | | | | | | | |
| Corrugated (OCC) | 61,449 | | 61,449 | 59,684 | | 59,684 | 53,288 | 252 | 53,540 | 53,938 | 2,858 | 56,796 | 1,765 | | 3% | 1,765 |
| Newspaper (ONP) | 1,747 | | 1,747 | 2,824 | | 2,824 | 909 | | 909 | 2,369 | | 2,369 | -1,077 | | -38% | -1,077 |
| Sorted Office Paper (1) | 18,691 | | 18,691 | 7,981 | | 5,775 | 5,001 | | 5,001 | 5,078 | | 5,078 | 10,710 | | 185% | 10,710 |
| Mixed Paper (2) | 5,840 | | 5,840 | 13,122 | | 15,328 | 8,174 | | 8,174 | 8,064 | | 8,064 | -7,282 | | -48% | -7,282 |
| Subtotal: | 87,727 | 0 | 87,727 | 83,611 | 0 | 83,611 | 67,372 | 252 | 67,624 | 69,449 | 2,858 | 72,307 | 4,116 | 0 | 5% | 4,116 |
| All Other Packaging | | | | | | | | | | | | | | | | |
| Glass | 4 | | 4 | 170 | | 170 | 332 | | 332 | 208 | | 208 | -167 | | -98% | -167 |
| Plastic Film /Wrap | 757 | | 757 | 601 | | 601 | 1,452 | | 1,452 | 974 | | 974 | 156 | | 26% | 156 |
| Retail Bags (3) | 251 | | 251 | | | | | | | | | | 251 | | | 251 |
| Plastic Containers | 97 | | 97 | 118 | | 118 | 30 | | 30 | 223 | | 223 | -21 | | -17% | -21 |
| Polystyrene Packaging (4) | 73 | 12 | 86 | | 12 | 12 | | | | | | | 73 | 0 | NA | 73 |
| Aluminum Cans (5) | 2,514 | | 2,514 | 2,277 | | 2,277 | 696 | | 696 | 728 | | 728 | 237 | | 10% | 237 |
| Pallets (6) | 3,828 | | 3,828 | 4,278 | | 4,278 | 4,714 | | 4,714 | 3,842 | | 3,842 | -450 | | -11% | -450 |
| Mixed Recyclables (7) | 119,791 | 0 | 119,791 | 110,799 | 0 | 110,799 | 33,079 | 62,211 | 95,290 | 16,002 | 54,133 | 70,135 | 8,992 | | 8% | 8,992 |
| Subtotal: | 127,316 | 12 | 127,329 | 118,243 | 0 | 118,243 | 40,303 | 62,211 | 102,514 | 21,979 | 54,133 | 76,111 | 9,073 | 0 | 8% | 9,074 |
| Vehicle Waste | | | | | | | | | | | | | | | | |
| Tires (8) | 1,865 | 0 | 1,865 | 2,226 | 0 | 2,226 | 3,110 | 951 | 4,061 | 6,831 | 989 | 7,820 | -361 | 0 | -16% | -361 |
| Lead Acid Batteries | 2,984 | | 2,984 | 3,472 | | 3,472 | 2,052 | | 2,052 | 2,341 | | 2,341 | -488 | 0 | -14% | -488 |
| Oil Filters | 443 | | 443 | 452 | | 452 | 379 | 0 | 379 | 234 | 58 | 292 | -9 | 0 | -2% | -9 |
| Subtotal: | 5,292 | 0 | 5,292 | 6,150 | 0 | 6,150 | 5,541 | 951 | 6,492 | 9,407 | 1,047 | 10,454 | -858 | 0 | -14% | -858 |
| Special Wastes | | | | | | | | | | | | | | | | |
| Carpet | 98 | | 98 | 140 | | 140 | 98 | | 98 | 742 | | 742 | -42 | | -30% | -42 |
| Textiles (9) | 3,772 | | 3,772 | 2,188 | | 2,188 | 4,284 | | 4,284 | 4,946 | | 4,946 | 1,584 | | 72% | 1,584 |
| Mattresses (10) | 146 | 79 | 225 | | | 0 | | | | | | | 146 | 79 | NA | 225 |
| Florescent Bulbs | 16 | | 16 | 19 | | 19 | 15 | | 15 | 8 | | 8 | -3 | | -15% | -3 |
| Electronic Goods | 669 | 1,417 | 2,086 | 903 | 1,717 | 2,620 | 839 | 1,933 | 2,772 | 240 | 1,883 | 2,123 | -234 | -300 | -20% | -534 |
| Other Batteries | 250 | 61 | 311 | 16 | 71 | 87 | 3 | 44 | 47 | 48 | 48 | 96 | 234 | -10 | 257% | 224 |
| Subtotal: | 4,951 | 1,557 | 6,508 | 3,267 | 1,788 | 5,055 | 5,239 | 1,977 | 7,216 | 5,984 | 1,930 | 7,914 | 1,685 | -231 | 24% | 1,229 |
| Organic Wastes | | | | | | | | | | | | | | | | |
| Fats, Oil, Grease | 3,640 | | 3,640 | 8,802 | | 8,802 | 5,103 | | 5,103 | 4,029 | | 4,029 | -5,162 | 0 | -59% | -5,162 |
| Food Waste | 17,381 | | 17,381 | 17,626 | | 17,626 | 12,701 | | 12,701 | 7,624 | | 7,624 | -245 | 0 | -1% | -245 |
| Leaf and Yard Waste (11) | 103,356 | | 103,356 | 121,514 | | 121,514 | 126,463 | 0 | 126,463 | 116,756 | 4,111 | 120,867 | -18,158 | 0 | -15% | -18,158 |
| Trees and Branches | 83,727 | | 83,727 | 59,125 | | 59,125 | 44,888 | | 44,888 | 68,157 | | 68,157 | 24,602 | 0 | 42% | 24,602 |
| Clean Wood (12) | 5,146 | | 5,146 | 4,756 | | 4,756 | 5,410 | | 5,410 | 5,152 | | 5,152 | 390 | 0 | 8% | 390 |
| Subtotal: | 213,250 | 0 | 213,250 | 211,822 | 0 | 211,822 | 194,565 | 0 | 194,565 | 201,718 | 4,111 | 205,829 | 1,427 | 0 | 1% | 1,427 |
| Metals | | | | | | | | | | | | | | | | |
| White Goods | 29,420 | 395 | 29,815 | 22,178 | 790 | 22,968 | 19,454 | 458 | 19,912 | 18,444 | 768 | 19,212 | 7,242 | -395 | 30% | 6,847 |
| Subtotal: | 29,420 | 395 | 29,815 | 22,178 | 790 | 22,968 | 19,454 | 458 | 19,912 | 18,444 | 768 | 19,212 | 7,242 | -395 | 30% | 6,847 |
| Other | | | | | | | | | | | | | | | | |
| Mixed Plastics (13) | 2,423 | 0 | 2,423 | 2,645 | 0 | 2,651 | 3,965 | | 3,965 | 2,063 | | 2,063 | -222 | 0 | -8% | -222 |
| Subtotal: | 2,423 | 0 | 2,423 | 2,645 | 0 | 2,651 | 3,965 | 0 | 3,965 | 2,063 | 0 | 2,063 | -222 | 0 | -8% | -222 |
| Total | 470,379 | 1,964 | 472,343 | 447,915 | 2,584 | 450,499 | 336,439 | 65,849 | 402,288 | 329,045 | 64,846 | 393,891 | 22,463 | -626 | 5% | 21,613 |

TABLE 2 NOTES:

- (1) Sorted Office Paper: Some figures may be included in mixed paper. Sorted Office Paper 2013 figures were corrected (adjusted up by 2,206 tons) in this 2014 report to correct a reporting error in 2013.
- (2) Mixed Paper: All mixed paper reported was included as MSW even in cases where processors did not reveal sources. Note that Mixed Paper 2013 was adjusted down by 2,206 tons in this 2014 report to correct a reporting error in 2013.
- (3) Retail Bags: This category is new for 2014 and includes only plastic bags. Plastic bags were included in Plastic Film/Wrap totals in prior years.
- (4) Polystyrene (PS) Packaging: This category was added to disaggregate PS recycling from other types of plastic packaging. It is included in the total for 2013 as part of "Mixed Plastics", but has been accounted for separately for the first time in 2014.
- (5) Aluminum Cans: Primarily aluminum cans but may include other aluminum containers reported by scrap metal recyclers.

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- An increase in participation, and the quality of data received from all paper reporters.
- Better participation, especially from document destruction and paper shredding outfits, many of whom have been part of consolidation activity over the last two years. After years of restructuring and consolidation it appears that the document destruction and paper shredding outfits have stabilized, providing DSM with more specific details about paper grades and overall more accurate reports.

There are also trends countering the continued increase in paper recycling. These include:

- Technology has resulted in the migration of office record keeping from paper to digital. While this industry trend would suggest a reduction in sorted office paper, and possibly mixed paper, this was likely counteracted by an increase in economic activity in CY 2014, as well as the migration of some mixed paper to sorted office paper (SOP) bales;
- The 2014 newspaper (ONP) total is a decrease of 1,077 tons from the CY 2013 total. This is in part due to one of the larger ONP recyclers no longer collecting materials within the State of Delaware. Additionally with the switch to digital media the newspaper industry has seen large decreases in subscription rates, and thus, overall production of ONP.
- Losses in paper recycling (especially ONP) are considered to be permanent; this trend should be expected to continue in future years.

OTHER PACKAGING WASTE

Recycling of packaging wastes are up by 9,074 tons (rounded) primarily due to the increase in single stream recycling activity across Delaware. While single stream recycling was up a reported 8,992 tons (rounded) for CY 2014, this figure includes residue as it has in years past. Residue includes both materials that are not accepted for recycling but collected with other recyclables as well as materials that could be recycled but are not due to process inefficiencies.

Residue has not been subtracted from the totals reported for single stream materials (mixed recyclables) or for any other materials. For example paper bales may have up to 2 percent or more residue, and textiles and appliances (among other materials) may have some residual materials that cannot be recycled and need to be disposed. While residue has not been accounted for in the totals reported, with the increase in single stream recycling, and potential for higher residue rates, the issue of residue bears mentioning, and is important to track as well as to employ methods that can work to decrease the residue rate.

Other explanations for changes in packaging waste recycling figures reported include:

- Recycling of glass reported separately decreased again following the trend begun with the large reduction between 2010 and 2011. This was due to single stream recycling including glass combined with the sunset of the mandated beverage container redemption program that required wholesalers and distributors of glass beverage containers to handle return containers. It should also be emphasized that glass material is still being captured and recycled. The glass tonnage is now captured as part of the single stream material data. However there is no way to

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confirm how much glass is collected and recycled through single stream for comparison against prior separate collection programs. In addition, the end markets for glass may have changed as a result of the single stream recycling processing.

- There was an increase from CY 2013 in reporting of shrink wrap recycling even with the separate reporting of *Retail Bags*. Many large retailers have been including their retail bags (primarily collected from 'take back bins') in their shrink wrap numbers in the past, as they often bale these materials together. For CY 2014 we asked retailers to estimate retail bags as a percentage of total shrink wrap/plastic film reported so a separate figure for retail bags could be reported.
- There has been an increase in the quantities of aluminum cans reported primarily by scrap metal recyclers. DSM believes this is due to both an increase in small scrappers who collect and consolidate aluminum cans (some likely removing them from curbside bins) and better reporting. (For example DSM received a report in CY 2014 from a scrap metal recycler who had not reported since CY 2009.)
- DSWA began a polystyrene collection program in 2013 to recycle polystyrene packaging materials and any clean polystyrene foodservice materials. A total of 12 tons of EPS material was collected for recycling in Delaware by DSWA in CY 2013 and 12.5 tons in CY 2014. Additionally a total of 73 tons of EPS material was reported recycled by businesses and institutions within the State of Delaware. This is assumed to be packaging material but could include some other types of non-foam EPS.

SCRAP METAL

White goods (appliances) showed a 6,850 ton (rounded) increase in 2014 over 2013. This increase is primarily due to a metal recycler reporting for the first time since CY 2009. Without the report submitted by the 'new' metal recycler, the total tonnage for white goods would have decreased slightly for CY 2014.

GREEN WASTE

CY 2014 saw another year of increases in the recovery of green waste. While leaf and yard waste recovery was down by 18,160 (rounded) over CY 2013, tree and branch waste recovery was up roughly 24,600 tons (rounded) compared with 2013.

Overall, the difference is likely explained by the following factors:

- Better reporting in the allocation of material to the trees and branches category from leaf and yard waste category due to the extensive survey of handlers of these materials in CY 2014. (All handlers were contacted and interviewed by DSM for the 2015 *State of Delaware Yard Waste Study*.)
- While Delaware did not have any reported hurricanes for CY 2014, they did see significant winter storms, which produced downed trees and limbs that went to mulchers.
- A number of large material handlers do not operate with scales. Instead, these handlers measure volume and material handling in cubic yards. The total annual cubic yards reported is then split between yard waste and tree waste by the material handler. For 2014 DSM

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attempted to more accurately disaggregate trees and branches from yard waste, and to use more accurate density conversions.

- DSM uses EPA, Pennsylvania and Oregon data for reference densities. As reported yard waste totals have grown, more follow-up has occurred with reporters to ensure reasonable density conversions are made recognizing differences in the density have a direct impact on the final reporting tonnage for the green waste material handled and reported in Delaware.

FOOD WASTE

There was no marked increase of food waste composting in 2014, with a decline of 245 tons calculated. While several facilities offered composting in-state as an alternative to landfilling of these organics, and more businesses (mainly supermarkets) participated in food waste separation programs, the closure of the WORC facility was one factor in lower totals reported.

Looking forward, this closure along with Blue Hen's recent decision to no longer accept food waste makes it uncertain if longer hauls of food waste generated from businesses in New Castle County (and in Sussex County) to alternative facilities will be feasible next year or if facilities will have to curtail food waste separation programs until a closer, alternative site is operational.

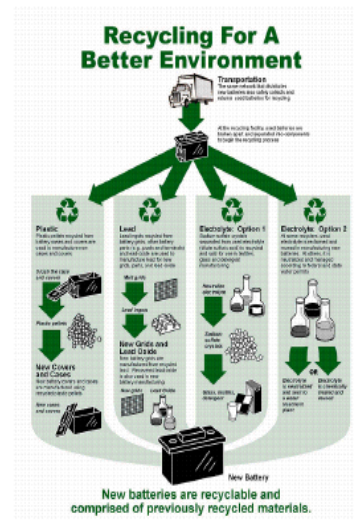
Fats, oil and grease also saw a decrease of 5,162 tons compared with 2013 due to one processor reporting a significant lower volume for CY 2014.

VEHICLE WASTE

There was a decrease in the volume of vehicle waste reported by 860 tons (rounded). This decrease was attributed to an increased use of tire derived fuel as a recycling process in 2014 (which is not counted as MSW recycling) and a decrease in the reporting of lead acid battery recycling.

However tires, lead acid batteries and oil filter recovery continue to be underreported. For example, using national figures from the *Rubber Manufacturing Association (2013 data)*, waste tire generation for Delaware last year would be roughly 11,100 tons and recovery estimated at 10,700 tons. On a national basis, tire derived fuel uses were roughly 58% of total used tire recovery (excluding retreading). The balance, 42%, goes to construction, engineering and other end uses. Delaware reported a total of 5,209 tons of tires diverted from disposal with roughly 64 percent going to tire derived fuel end uses.

Lead acid battery recycling is also underreported. According to the *Battery Council International*, 98 percent of lead acid battery lead is recovered. In addition, the Council reports that new lead-acid batteries typically contain 60 to 80 percent recycled content (lead and plastic, mainly polypropylene).



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TEXTILES AND OTHER SPECIAL WASTES

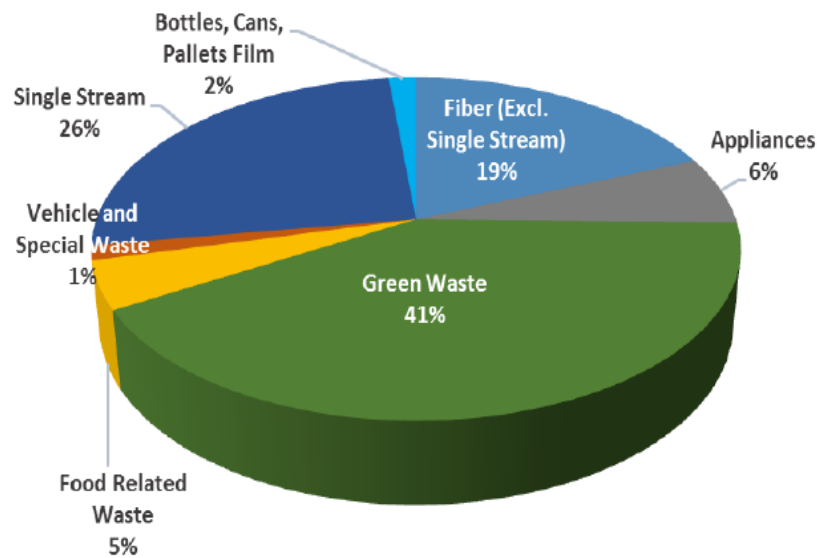
Textile recycling is also underreported in Delaware (and many other states). This is because DSM has relied primarily on the Salvation Army, Goodwill and DSWA for estimates of textile recycling. However from 2000 to 2012 the volume of textile recycling has almost doubled at the national level, with many more players entering the marketplace. For CY 2014 DSM identified two new textile recyclers that are operating within the State of Delaware who reported for the first time in CY 2014.

In addition, while carpet recycling was not reported by those businesses that have been involved in this activity in the past, DSM followed up with companies involved in renovations and construction of LEED buildings and in demolition and salvage and identified roughly 100 tons of carpet that was recycled from Delaware in CY 2014.

SUMMARY

Figure 2, below illustrates the breakdown of MSW materials recovery, by material type, for Delaware for 2014, including DSWA recycling activity. Figure 2 emphasizes the growing role of single stream recycling and leaf and yard waste composting in materials recycling in Delaware

FIGURE 2: MATERIALS RECOVERY BY GENERAL MATERIAL CATEGORY INCLUDED IN EPA DEFINITION OF MSW RECYCLING (STATE OF DELAWARE, CY 2014)



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RESIDENTIAL VS. COMMERCIAL RECYCLING ACTIVITY

DSM estimated the percentage of each material recycled and classified as MSW generated by a residential as opposed to a commercial source. These allocations are shown in Table 3, below.

While in some cases the source of the material was clear, in others DSM was required to make our best professional judgment as to the source of the material. Since EPA does not attempt to quantify residential and commercial recycling separately, generally acceptable guidelines for allocation of materials recycling to the residential and commercial sector are not available.

In other cases, DSM has worked with RPAC in past years to agree upon acceptable allocations of materials recycling to the commercial and residential sectors. For example, 90 percent of all of white goods are reported as residential recycling.

In the past leaf and yard waste totals have been allocated as 8 percent commercial with the balance residential consistent with the 2004 survey of yard waste generators and processors.⁹ Trees and branches have been allocated as 11 percent commercial, and the balance residential, consistent with the same 2004 survey. With the completion of the *2015 State of Delaware Yard Waste Study (based on 2014 data)*, DSM has re-allocated the residential and commercial percentages for both yard waste and trees and branches. Yard Waste is now allocated at 90 percent residential with the balance commercial. Tree and Branches are now allocated at 50 percent residential and 50 percent commercial.

It should be noted when reading Table 3 that in the past significant amounts of newspaper, corrugated cardboard and mixed paper generated by residential sources were reported separately by DSWA, while now all paper, with the exception of a declining stream of separated cardboard, collected by DSWA is a single stream of paper and containers and reported under “packaging”. This makes year to year comparisons of paper recycling in this report and in aggregate more difficult.

⁹ This 2004 report surveyed landscapers and other generators or processors of yard waste, brush and tree waste and found roughly 8 percent of leaf and yard waste and 11 percent of tree waste was stated to be from commercial sources.

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TABLE 3: ESTIMATE OF RESIDENTIAL VS. COMMERCIAL MSW RECYCLING ACTIVITY (CY 2014)

| Material Category | Residential (tons) | Commercial (tons) | Total MSW (tons) |
|----------------------------|--------------------|-------------------|------------------|
| Paper | | | |
| Corrugated (OCC) | 462 | 60,987 | 61,449 |
| Newspaper (ONP) | 200 | 1,547 | 1,747 |
| Sorted Office Paper | 9 | 18,682 | 18,691 |
| Mixed Paper | 15 | 5,826 | 5,840 |
| Subtotal: | 686 | 87,041 | 87,727 |
| Packaging | | | |
| Glass | 0 | 4 | 4 |
| Plastic Film / Shrink Wrap | 0 | 757 | 757 |
| Retail Bags (1) | 251 | 0 | 251 |
| Plastic Containers | 0 | 97 | 97 |
| Polystyrene Packaging | 12 | 73 | 86 |
| Aluminum Cans (2) | 2,263 | 251 | 2,514 |
| Pallets | 0 | 3,828 | 3,828 |
| Mixed Recyclables (3) | 88,539 | 31,252 | 119,791 |
| Subtotal: | 91,065 | 36,263 | 127,329 |
| Vehicle Waste (4) | | | |
| Tires | 1,492 | 373 | 1,865 |
| Lead Acid Batteries | 2,388 | 597 | 2,984 |
| Oil Filters | 354 | 89 | 443 |
| Subtotal: | 4,234 | 1,058 | 5,292 |
| Special Wastes | | | |
| Carpet | 0 | 98 | 98 |
| Textiles (5) | 3,413 | 359 | 3,772 |
| Mattresses (6) | 225 | 0 | 225 |
| Florescent Bulbs | 0 | 16 | 16 |
| Other Batteries | 280 | 31 | 311 |
| Electronics (7) | 992 | 1,094 | 2,086 |
| Subtotal: | 4,909 | 1,599 | 6,508 |
| Food Related Wastes | | | |
| Fats, Oil, Grease | 0 | 3,640 | 3,640 |
| Food Waste | 25 | 17,356 | 17,381 |
| Subtotal: | 25 | 20,996 | 21,021 |
| Green Waste | | | |
| Leaf and Yard Waste (8) | 93,020 | 10,336 | 103,356 |
| Trees and Branches (9) | 41,864 | 41,864 | 83,727 |
| Clean Wood (10) | 16 | 5,130 | 5,146 |
| Subtotal: | 134,900 | 57,329 | 192,229 |
| Metals | | | |
| White Goods (11) | 26,834 | 2,982 | 29,815 |
| Subtotal: | 26,834 | 2,982 | 29,815 |
| Other | | | |
| Mixed Plastics (12) | | 2,423 | 2,423 |
| Subtotal: | 0 | 2,423 | 2,423 |
| Total: | 262,653 | 209,691 | 472,344 |

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Assessment of MSW Recycling for CY 2014



TABLE 3 NOTES (NUMBERS MAY NOT ADD DUE TO ROUNDING):

- (1) Retail bags are assumed to be 100% residential.
- (2) Aluminum can recycling includes those cans reported by scrap dealers and are reported to be 90% residential by scrap dealers.
- (3) Single stream recycling through Wilmington assumed to be 100% residential. All other single stream recycling reported was estimated as residential and commercial by the reporting entity including haulers and processors. The total tons reported include an estimated 10% residue rate (Source: DSWA through ReCommunity).
- (4) All vehicle wastes recycled are assumed to be 80% residential and 20% commercial. This is consistent with past reporting.
- (5) All textiles are considered residential consistent with past reporting, except when reported by the commercial/ industrial sector. The documented source of textiles is unknown, however DSM assumes most textiles came from residential sources. Also textiles reused are excluded under EPA but included here since reuse versus recycling cannot be determined.
- (6) Mattresses are considered to be 100% residential.
- (7) Electronics collected by DSWA are assumed to be 70% residential, and all other electronics assumed to be 100% commercial consistent with past reporting.
- (8) Leaf and Yard waste allocations were made using newly allocated percentages (consistent with the 2014 State of Delaware Yard Waste Study) of 90% residential and 10% commercial. Note that, as described in Footnote 3 to the 2015 State of Delaware Yard Waste Report, 5,116 tons of yard waste reported as diverted from disposal was deducted from the total because this material was not composted or mulched (but stored off-site or used in landfill construction and landscaping operations) and therefore is not defined as MSW recycling, consistent with EPA's definitions of recycling.
- (9) Trees and branches waste allocations were made using newly allocated percentages (consistent with the 2014 State of Delaware Yard Waste Study) as 50% residential and 50% commercial.
- (10) Clean wood is reported separately by some mulchers or composters and can be trees and branches or clean (not stained or painted) structural lumber used for mulching or composting.
- (11) White goods are assumed to be 90% residential consistent with prior reporting.
- (12) Mixed plastics reported are assumed to be 100% commercial consistent with past reports.

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Assessment of MSW Recycling for CY 2014



Calculating the Recycling Rate for Delaware

CALCULATING THE DENOMINATOR

To determine total MSW disposal from Delaware generators for CY 2014, DSM collected data from DSWA, and from out-of-state disposal facilities in cases where in-state generators used out of state waste-to-energy facilities as opposed to DSWA landfills.

DSM reviewed all scale data kept by DSWA on deliveries to the three landfills and three transfer stations during CY 2014. DSM then followed these steps to disaggregate construction and demolition waste and estimate total MSW disposal in Delaware, as well as to allocate MSW disposed to the residential and commercial sector, as follows:

First, DSM obtained CY 2014 data on deliveries of solid waste to each of DSWA's transfer stations and landfills. This included data on whether the waste was classified as municipal solid waste (MSW) or construction and demolition wastes (C&D) at each DSWA facility.

Second, DSM obtained data on the quantity of solid waste delivered by vehicle type to each DSWA facility (e.g. front end loader, rear end loader, side loader, roll-off, pick-up truck). Using 2011 survey data on the typical source of waste by vehicle type coming into each facility, DSM allocated total waste tonnage for the year 2014 for each vehicle type to residential, commercial, C&D or self-haul categories.

Third, DSM totaled residential, commercial, C&D and self-haul quantities for each facility calculated by the vehicle type allocations made, and from this calculated total tons of residential, commercial, C&D and self-haul waste delivered statewide for 2013.¹⁰

Finally, the self-haul total (estimated at 7.6 percent of total deliveries using the vehicle allocation method described above) was allocated equally to residential, commercial and C&D sources consistent with past facility surveys. Table 4-1 and 4-2 show these steps.

TABLE 4-1: SELF-HAUL, RESIDENTIAL, COMMERCIAL, AND C&D WASTE DELIVERIES TO DSWA FACILITIES BASED ON VEHICLE TYPE (CY 2014)

| DSWA Facility | Waste, By Generator Type, 2014 | | | | Total |
|---------------|--------------------------------|----------------|----------------|----------------|----------------|
| | Self Haul (tons) | Res (tons) | Com (tons) | C&D (tons) | |
| NSWMC | 14,827 | 148,061 | 159,657 | 39,081 | 361,626 |
| CSWMC | 6,406 | 33,292 | 29,566 | 8,184 | 77,449 |
| SSWMC | 12,402 | 22,016 | 35,336 | 54,901 | 124,654 |
| PTCTS | 3,373 | 32,993 | 30,435 | 2,725 | 69,527 |
| MTS | 2,490 | 20,627 | 14,130 | 636 | 37,883 |
| RT5TS | 5,868 | 48,541 | 21,691 | 853 | 76,953 |
| TOTAL: | 45,366 | 305,529 | 290,815 | 106,382 | 748,092 |

¹⁰ These totals were adjusted by materials removed from MSW and C&D before landfilling. These totaled 956 tons in CY 2014.

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Assessment of MSW Recycling for CY 2014



TABLE 4-2: REALLOCATION OF SELF-HAUL WASTE TO RESIDENTIAL, COMMERCIAL, AND C&D SECTOR TO ESTIMATE TOTAL RESIDENTIAL AND COMMERCIAL WASTE DELIVERIES TO DSWA FACILITIES (CY 2014 WITH CY 2013 COMPARISON)

| SECTOR | Total, From Table 4-1 (tons) 2014 (tons) | Reallocation of Self-haul 2014 (tons) | TOTAL MSW 2014 (tons) | Total, By Sector 2013 (tons) | Reallocation of Self-haul 2013 (tons) | TOTAL MSW 2013 (tons) |
|---------------|--|---|-----------------------------|---------------------------------|---|-----------------------------|
| Residential | 305,529 | 15,122 | 320,651 | 298,036 | 17,245 | 315,281 |
| Commercial | 290,815 | 15,122 | 305,937 | 269,637 | 17,245 | 286,882 |
| C&D | 106,382 | 15,122 | | 90,778 | 17,245 | |
| Self Haul | 45,366 | | | 51,735 | | |
| TOTAL: | 748,092 | 45,366 | 626,588 | 710,185 | 51,735 | 602,163 |

CALCULATING THE RECYCLING RATE

In addition to the estimated 626,588 tons of municipal solid waste disposed, there was another 32,200 tons of primarily commercial waste disposed at out-of-state facilities.

Using totals from Table 3 for residential and commercial recycling activity in the numerator and the results of Tables 4-1 and 4-2 in the denominator, and then adding 32,200 tons to the commercial sector, the residential and commercial recycling rates are calculated along with the State's MSW recycling rate as a whole as shown in Table 5.

TABLE 5: CALCULATION OF RESIDENTIAL AND COMMERCIAL RECYCLING RATE, AND THE TOTAL MSW RECYCLING RATE (CY 2013) (1)

| Sector | (A) Recycling (tons) | (B) Disposal (tons) | (C) Other Disposal (tons) | (B) + (C) Total Disposal (tons) | A / (A + B + C) Recycling Rate (%) |
|---------------|----------------------------|---------------------------|---------------------------------|---------------------------------------|--|
| Residential | 262,653 | 320,651 | 0 | 320,651 | 45.0% |
| Commercial | 209,691 | 305,937 | 32,200 | 338,137 | 38.3% |
| TOTAL: | 472,344 | 626,588 | 32,200 | 658,788 | 41.8% |

(1) There is an increase in recycling tonnage of 5% but no increase in the recycling rate due to the increase in the denominator.

Appendix D. Outreach Examples

Figure D.1 – “Delaware Recycles” Logo, used to unify and brand outreach efforts



Figure D.2 – Website: www.recycling.delaware.gov



Delaware.gov
The Official Website of the First State



What's New

All commercial businesses in Delaware must take part in a comprehensive recycling program. Universal, comprehensive recycling is required by Delaware state law. This includes for profit and not-for profit retail and wholesale stores, offices, food service establishments, warehouses, and other manufacturing, industrial, or processing activities. And it includes institutions such as social, charitable, educational, health care, professional, and government services.

Waste haulers are required to provide single-stream recycling collection to both single and multi-family residential customers, and most bars and restaurants. The goal of the Universal Recycling Law is to maximize the convenience of recycling and minimize the amount of trash disposed in Delaware. Recycling keeps raw materials in the manufacturing sector, creates jobs, and promotes sustainability.

- [Letter to Businesses, Organizations, and Municipalities Regarding Universal Recycling \[PDF\]](#)
- [Click here for information on recycling grant opportunities, commercial recycling toolkits, and information by topic.](#)

More Information

- [13th Annual Report of the Recycling Public Advisory Council \[PDF\]](#)
- [Recycling Info by Topic](#)
- [Contact Us](#)
- [DSWA List of Residential Waste Haulers](#)
- [What's Recyclable in Delaware](#)
- [Universal Recycling Legislation](#)
- [Bottle Fee Info for Retailers](#)
- [Yard Waste Information](#)
- [How to Recycle Guide \[PDF\]](#)



Figure D.3 – Facebook Page: www.facebook.com/delawarerecycles

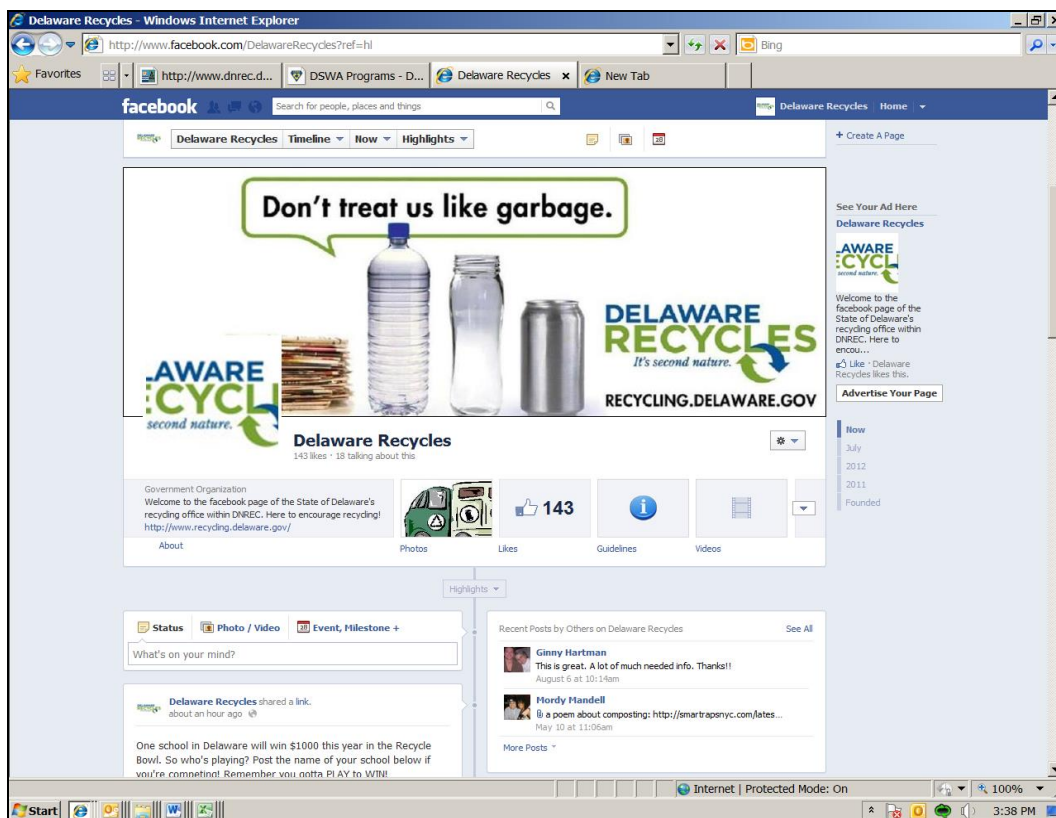


Figure D.4 – How to Recycle Guide - 2014

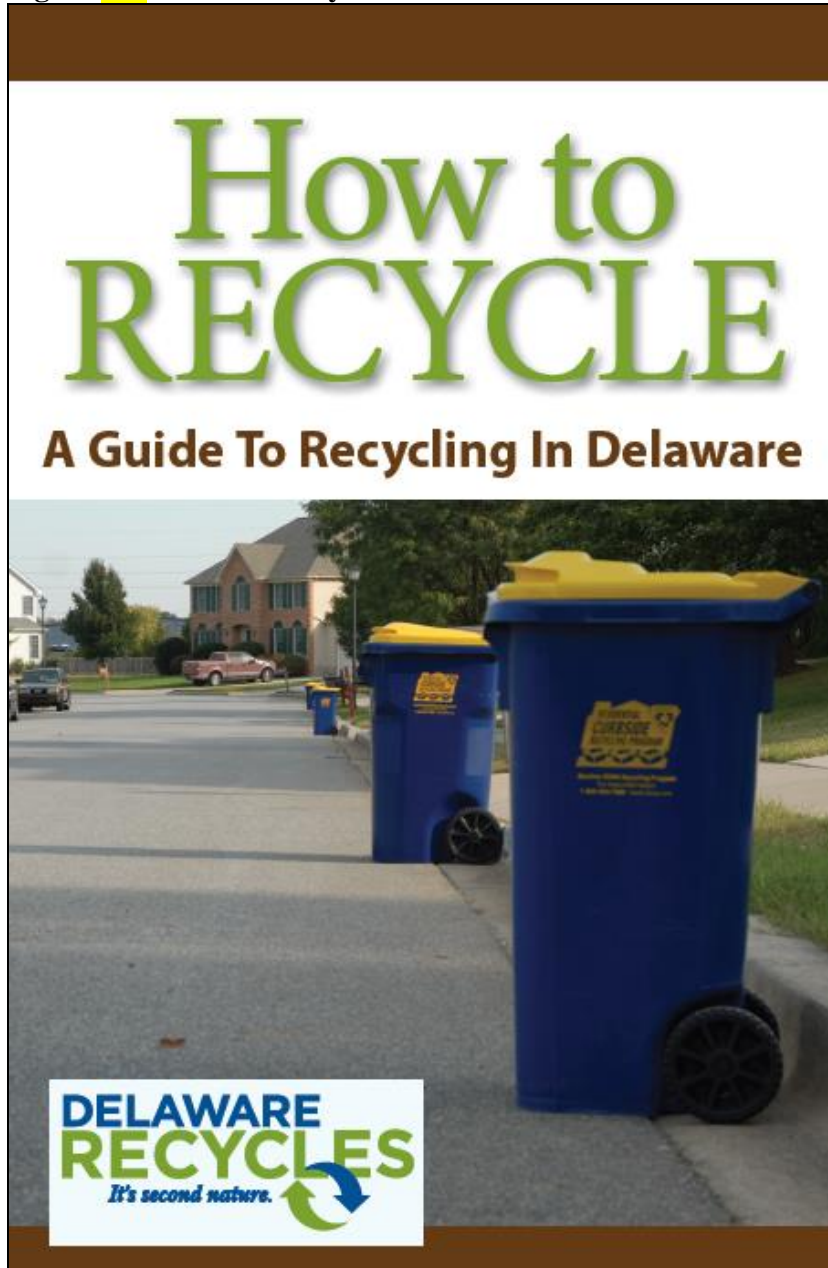


Figure D.5 – Composting Brochure



Appendix E. Background of Recycling Efforts in Delaware

The State of Delaware first began promoting recycling in 1975 with the passage of the Delaware Solid Waste Authority's enabling legislation. This led to the opening of the Delaware Reclamation Plant, which held the title of the largest recycling/reclamation project in the world for nearly 11 years. About 2.5 million tons of municipal solid waste and 0.5 million tons of sewage sludge were processed through this plant. This facility was shut down in 1993 and the plant was modified to operate as the Delaware Recycling Center which processes and markets all the recyclables from the 'RECYCLE DELAWARE' Drop-Off Program.

The next major milestone was the implementation of the Beverage Container Law in 1979 designed to prevent roadside littering.

In 1990, the statewide drop-off recycling program, known as 'RECYCLE DELAWARE', was established by the Delaware Solid Waste Authority. The DSWA 'RECYCLE DELAWARE' centers peaked at 170 sites collecting approximately 34,000 tons per year of recyclables and as of this year (2014) are down to 75 sites collecting approximately 19,000 tons per year. Recyclables collected include brown, green and clear glass bottles, plastic bottles, newspaper and magazines, aluminum and steel cans (including aerosols), textiles, motor oil and oil filters, corrugated cardboard, and household batteries (the batteries are not recycled, but disposed of properly).

Despite these recycling milestones, Delaware's former Governor, Thomas Carper, received frequent letters and phone calls from Delaware residents requesting implementation of curbside collection of recyclables. These requests spurred Governor Carper to call a meeting in late 1998 with representatives of the DNREC, the Delaware Economic Development Office (DEDO) and the DSWA to discuss the feasibility of implementing curbside collection of recyclables in Delaware. The result of this meeting was the issuance of Executive Order No. 60 establishing the Citizens' Work Group on Recycling to evaluate recycling in Delaware. The work group would also recommend ways to increase recycling in Delaware.

In the spirit of conservation and pursuant to the report "A Course of Action to Increase Recycling in the State of Delaware," which was developed by and contained the recommendations of the Citizens' Work Group on Recycling, Governor Thomas R. Carper signed Executive Order Eighty-Two which:

1. Established the goal of a thirty (30) percent diversion rate for recyclables from Delaware's residential solid waste stream.
2. Required the Department of Natural Resources and Environmental Control (DNREC), Division of Air and Waste Management (DAWM) to work in concert with the Delaware Solid Waste Authority (DSWA) and the Recycling Public Advisory Council (RPAC) to:
 - a) develop a method for measuring recycling,
 - b) establish a recycling grant program,
 - c) establish a public outreach and education program aimed at educating the general public and students on the value of recycling as well as to increase the recycling rate,

- d) provide technical assistance to local entities to increase the recycling rate, and
 - e) provide administrative support to the RPAC.
3. Established the nine (9) member RPAC and tasked the RPAC with:
- a) advising DNREC and DSWA on all aspects of recycling,
 - b) advising DNREC on developing grant criteria,
 - c) advising DNREC and DSWA on outreach activities to increase recycling, and
 - d) developing an annual report due on December 1st of each year detailing the status of recycling activities within Delaware.

Governor Minner appointed the members of the RPAC early in her Administration and the first RPAC meeting was held on February 27, 2001. DNREC also hired an Environmental Scientist and a Community Relations Officer to assist the Council. The Environmental Scientist aided the Council in developing the method for measuring recycling and provided recycling technical assistance to Delaware's communities and local governments.

The RPAC contracted a study on residential curbside recyclables collection in New Castle County. The final report, titled "Evaluation of Enhanced Residential Waste and Recyclables Collection and Processing for New Castle County", was published in 2003 by DSM Environmental Services, Incorporated. The report concluded that curbside collection of recyclables could be done at least as, if not more, cost effectively than trash if the system is properly designed.

In early 2006, Senate Bill 225 (SB 225) was introduced in the Delaware Senate. It established a framework for a statewide curbside recycling system, established a Recycling Fund to help pay for recycling programs, banned yard waste from disposal (providing for development of yard waste management facilities), established statewide recycling goals, and established the RPAC. The Governor's Office, DNREC, DSWA, and the RPAC all supported SB 225. The Bill did pass the Senate with amendments but it was tabled in the House of Representatives.

In October of 2005, DNREC Secretary, John Hughes, established the Solid Waste Management Technical Working Group (SWMTWG) pursuant to a directive from Governor Minner. It was comprised of individuals with technical backgrounds, financial backgrounds, and/or experience with municipal solid waste management systems and technologies. The SWMTWG was tasked to perform a feasibility review of municipal solid waste management alternatives and to recommend a program or programs that would best serve Delaware's municipal solid waste management needs. In April of 2006, the SWMTWG produced a report that recommends the state implement effective source reduction and recycling programs and building a processing facility.

The Citizens Solid Waste Solutions Commission (CSWSC), an organized group of environmentally conscious citizens, also produced a report in 2006. They called for more convenient and cost-effective recycling programs, better processing facilities for recyclables and discards, opposition to incineration, and a more focused recycling agency than the DSWA. They argued that recycling is an issue of resource management rather than one of waste disposal.

The City of Wilmington initiated a single-stream curbside recycling trial for over 6,000 households in the Summer of 2006. The City partnered with RecycleBank, a recycling company based in Philadelphia, to provide the service. RecycleBank provided wheeled recycling containers, retrofitted Wilmington's trucks to service the containers and weigh the material, provided various data reports, and provided outreach and education about the program. Through the RecycleBank program, participating households earned up to \$35 per month in RecycleBank

Dollars which could be redeemed at stores of the customer's choosing. The incentive encouraged residents to recycle and helped Wilmington to divert waste from the landfill. The recycling rate in Wilmington's trial areas went from almost zero to about 35% in about six months. In 2007 the program was expanded citywide.

In September of 2006 Governor Minner signed Executive Order 90, which replaced Executive Order 82 and re-established the RPAC. Executive Order 90 increased the membership of the RPAC by two public members. It also increased the former recycling diversion rate goal from 30% of residential solid waste to 51% of municipal solid waste.

The Cherry Island Landfill permit was renewed in 2006 with language that required the DSWA to ban yard waste from entering the landfill no later than January 1, 2007. After dozens of community meetings, a legislatively mandated delay in the ban, and the opening of three community yard waste demonstration sites, DNREC and the DSWA began enforcement of the ban on January 24, 2008.

House Bill 159 (HB 159) was introduced in 2007 and would have encouraged recycling via a comprehensive recycling grants program while discouraging disposal via a \$3 per ton assessment on landfilling. In May of 2008, HB 159 passed in the House of Representatives but was defeated in the Senate in June of 2008.

Starting in January of 2008, Kent County provided single-stream recyclables collection to residents serviced in their trash districts. This increased the number of Delaware households participating in recycling by over 11,000.

In early 2008, the DSWA converted their recyclables collection programs to single-stream. Participants no longer needed to separate traditional recyclables (i.e. glass bottles, cans, plastic bottles, mixed papers) by material type. As a result, recycling became more convenient and easier for people to participate. Other entities, including some waste haulers, also began to offer single-stream recyclables collection service.

In June of 2009, House Bill 201 was passed by the General Assembly on the last day of session. It essentially repealed the Delaware Beverage Container Law (or Bottle Bill), and removed the deposit and redemption system related to beverage containers. Governor Markell vetoed House Bill 201 in July of 2009, on the grounds that it would have a negative impact on recycling and offered no viable alternative.

In December of 2009, Peninsula Compost Company, LLC completed construction of the Wilmington Organic Recycling Center near the Port of Wilmington. This composting facility is approved to accept and process up to 160,000 tons of yard waste, wood waste, food waste, hatchery waste, and animal bedding into compost annually. (See October 2014 statement)

In February 2010, Governor Markell signed Executive Order 18. This Executive Order set goals in the following categories for the executive branch of state government: energy conservation/efficiency, LEED green building practices, renewable energy, reduced transportation impacts, recycling diversion (75%), and environmentally preferable purchasing.

In April 2010, the DSWA updated its Statewide Solid Waste Management Plan (SSWMP). The SSWMP calls for many waste reduction strategies, several of which required action from government and businesses.

In May 2010, Blue Hen Organics opened a 46-acre composting facility in Frankford to the general public. This facility is approved to accept and process 57,000 tons of yard waste, wood waste, food waste, hatchery waste, and chicken litter into compost annually.

On June 8, 2010, Senate Bill 234 (the Universal Recycling Law) was signed into law. This legislation passed after significant input from many stakeholders and coordination from the Governor's Office. It transitioned Delaware out of a flawed beverage container deposit system into a comprehensive recycling system. It also legislatively created a reformed RPAC.

On January 1, 2011, the Central Solid Waste Management Center (Sandtown Landfill) and the Southern Solid Waste Management Center (Jones Crossroads Landfill) stopped accepting yard waste mixed with trash. DSWA and DNREC agreed to permit conditions that restricted yard waste in July of 2010. All three DSWA landfills now ban yard waste.

By September 15, 2011, all single-family households with household trash collection, and many bars and restaurants, were provided with single stream, curbside recycling collection services.

In December, 2011, DSWA's Board of Directors approved staff to enter into agreements with the recycling company ReCommunity (to recycle municipal solid waste recyclables) and with Revolution Recovery (to recycle construction and demolition recyclables) at the Delaware Recycling Center (DRC) in New Castle.

In January, 2012, the DSWA, in partnership with Dart Container Corporation, began a pilot program to collect clean, #6 polystyrene foam (i.e. Styrofoam) for recycling at the DRC in New Castle. The program expanded to a second collection location at the Milford Transfer Station in February, 2012.

On March 1, 2012, Blue River Resources, LLC was granted a permit to operate a materials recovery facility (MRF) to separate paper, cardboard, plastic, metal, and glass for recycling. The facility is permitted to accept approximately 216,000 tons of recyclable waste materials per year. As of October 2012, the new MRF was 75% operational.

On March 17, 2012, non-profit organization Eden Delmarva launched the REPLENISH project with DNREC's assistance. The Sussex County-based project encourages the recovery of organic materials from 23 local restaurants to produce compost that is used at local farms. The compost fertilizes locally grown produce, which is then marketed back to the restaurants.

In April 2012, Revolution Recovery began accepting construction and demolition materials for recycling at its 42,000-square foot facility at the DRC.

In May 2012, the DSWA announced a 20-year agreement with ReCommunity to operate an automated materials recycling facility (MRF) at the DRC. State-of-the art sorting equipment will be housed in an existing building, and will process recyclable aluminum, plastics, paper, cardboard, tin and glass collected from throughout Delaware.

Spring and summer 2012 showed increased activity and awareness of recycling issues within the General Assembly. Senate Joint Resolution 8 established a strategy committee to study carpet recycling, and to report back to the General Assembly with a 10-year carpet recycling strategic plan. Senate Resolution 24 called for DSWA, DNREC, and the Zero Waste Working

Group develop a plan and proposed legislation to address single-use plastic shopping bags by January of 2013.

Between May 1, 2012 and April 1, 2013 the multi-family grants were completed. The grants funds awarded were for the capital costs of providing multi-family collection equipment and outreach and education materials.

In June of 2013 the grant contracts awarded during the third cycle of grant funding were signed. This grant cycle focuses on commercial recycling and awarded nearly \$1.4 million to a mix of fifteen different municipalities, waste haulers, private businesses and not-for-profit entities.

On May 3, 2013 Carpet Recycling Strategy Committee issued its report called for under Senate Joint Resolution No. 8. In summary, the report concluded the Committee was unable to reach consensus on recommendations on how to increase carpet recycling in Delaware with a goal of having 100% of all carpet removed in Delaware be diverted to carpet recycling. When the full Recycling Public Advisory Committee (RPAC) reviewed this report, it suggested that Delaware revisit the status of carpet recycling in another two years. At this point, Delaware will have better data on carpet diversion and recycling due to the reporting requirements in the Universal Recycling Law and the RPAC will be moving its efforts from residential solid waste to construction and demolition waste.

Between July 2012 and January 2013 the Zero Waste Working Group, which included members that represented industry, retailers, DSWA, DNREC, recyclers, and several environmental groups, met monthly to discuss and to present draft legislation that would lead to more effective plastic bag management in Delaware. The group did achieve consensus on a number of points including: fugitive plastic bags are a problem for infrastructure and wildlife in Delaware and education will be a part of any plan to reduce plastic bag waste. However, the group had divergent views and did not agree on any legislative recommendations. Some members independently lobbied to introduce a bill to continue the At-Store recycling program. This bill passed the House last legislative session and is expected to be introduced to the Senate this coming session.

Between November 1, 2012 and October 31, 2013 nineteen outreach and education training events were held throughout the state in reference to grant opportunities, the implementation of commercial recycling and general recycling outreach and education. For a detailed list of these events see Table 7 in section 6 of this report.

On August 29, 2013 ReCommunity held its grand opening ceremony. The opening of a state-of-the-art Materials Recovery Facility marks a recycling milestone for the State of Delaware. With the opening of this facility Delaware now possesses the capability to separate and market its own recyclables. As a result, not only are the profitability of these valuable resources maximized, dozens of valuable local jobs are also created in the process, and \$15 million in construction costs were added to the local economy. This chapter in Delaware's recycling history is possible as a result of the high diversion of recyclables afforded by the state's Universal Recycling law. ReCommunity and DSWA should be commended for their partnering efforts.

On January 1, 2014 the requirement for the commercial sector to implement comprehensive recycling programs began.

In March of 2014 the grant contracts for the fourth round of grant funding were signed. This cycle primarily funded recycling dumpsters, school dishware conversion, balers and outreach and education expenses. The awardees were a mix of municipalities, waste haulers, private businesses, schools and not-for-profit entities.

In May 2014 RPAC issued a letter to the Members of the 146th General Assembly enumerating several reasons why the legislature should consider requiring DNREC to close the Polly Drummond yard waste demonstration site. The letter cited substantive costs to maintain the site, impact to DNREC grant funds, statewide equity, and the fact that the site negatively impacts private management of this waste stream as sound reasons for closure.

On September 26, 2014 Revolution Recovery, a construction and demolition (C&D) waste recycler located at DSWA's Delaware Recycling Center in New Castle, Delaware, celebrated their grand opening. Revolution Recovery's presence in Delaware affords the opportunity to recycle C&D waste, as opposed to dispose of it, at pricing that is competitive with disposal. By doing so, Revolution Recovery contributes to both the states waste diversion rate by recycling a portion of the C&D waste stream and the state's employment rate by creating jobs.

On October 20, 2014 Peninsula Compost Company, LLC was issued a Secretary's Order requiring closure of its recycling facility. Peninsula Compost Company has placed an undue burden on the quality of life of residents in the City of Wilmington, parts of the City of New Castle and part of New Castle County – particularly those living in close proximity to the facility due to frequent uncontrolled odors. The company has been unable to maintain compliance with DNREC's Beneficial Use Determination permit and therefore required to close. The absence of a composting facility in northern Delaware will negatively impact the state's diversion rate going forward unless and until an alternative outlet for organics is made available.

In March of 2015 Blue Hen Composting closed its doors to accepting compostable materials due to concerns over odors and will cease all composting activity by April 2016.

In June of 2015 in response to the closure of both of Delaware's composting facilities members of 148th General Assembly issued Senate Concurrent Resolution 35 which established the Organics Recycling Task Force. This group is charged with: evaluating the most effective and efficient way to recycle organic waste within Delaware, meeting monthly and presenting its findings to the Delaware House and Senate Natural Resources Committees and the Governor by March 1, 2016.